



*International Civil Aviation Organization*

**The Twenty-Second Meeting of the APANPIRG ATM/AIS/SAR Sub-Group  
(ATM/AIS/SAR/SG/22)**

Bangkok, Thailand, 25 – 29 June 2012

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**Agenda Item 4: Review outcome of relevant meetings**

**INFORMAL PACIFIC AIR TRAFFIC CONTROL (ATC)  
COORDINATING GROUP (IPACG) UPDATE**

(Presented by United States of America and Japan)

**SUMMARY**

This paper presents an update from the 35<sup>th</sup> Meeting of the US/Japan Informal Pacific Air Traffic Control (ATC) Coordinating Group (IPACG/35), that was hosted by the Civil Aviation Bureau, Japan (JCAB) in Sapporo, Japan, from 7-11 November, 2011 and the 36<sup>th</sup> IPACG Meeting (IPACG/36), that was hosted by the US Federal Aviation Administration in San Diego, California, from 14-18 May, 2012.

This paper relates to –

**Strategic Objectives:**

A: *Safety – Enhance global civil aviation safety*

C: *Environmental Protection and Sustainable Development of Air Transport – Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment*

**Global Plan Initiatives:** All GPIs.

**1. INTRODUCTION**

1.1 The Informal Pacific Air Traffic Control (ATC) Coordinating Group (IPACG) was established to provide a forum for air traffic service providers and airspace users to meet informally and explore solutions to near term ATC problems that limit capacity or efficiency within the Anchorage, Oakland, and Fukuoka Flight Information Regions (FIRs). The IPACG/35 meeting, as well as the 22<sup>nd</sup> Future Air Navigation System (FANS) Interoperability Team (FIT/22) was hosted by the Civil Aviation Bureau, Japan (JCAB) in Sapporo, Japan, from 7-11 November, 2011. The IPACG/36 and FIT/23 meetings were hosted by the US Federal Aviation Administration in San Diego, California, from 14-18 May, 2012.

1.2 Mr. Hiroyuki Nakano, Special Assistant to the Director, ATC Division, JCAB and Mr. David S. Burkholder, Acting Director, Air Traffic Organization (ATO) International Office, FAA co-chaired the IPACG/35 meeting. Mr. Nakano and Ms. Karen L. Chiodini, Manager, Oceanic & Offshore Operations Group, ATO, FAA co-chaired the IPACG/36.

1.3 The meetings were attended by representatives from the FAA, JCAB, airspace operators, assorted industries, and international organizations. A number of collaborative activities were discussed, and agreements reached on efforts to improve the efficiency of air traffic operations in the North and Central Pacific, as well as the cross polar areas.

## 2. DISCUSSION

2.1 The following are the significant outcomes from the work of IPACG/35 and IPACG/36 on topics relevant to the work of the ATM/AIS/SAR/SG.

### 10 Minute Longitudinal Separation without Mach Number Technique

2.2 JCAB and Japan's Electronic Navigation Research Institute (ENRI) provided the midterm report of safety assessment of 10 minutes longitudinal time separation without mandatory application of Mach Number Technique (MNT) on Pacific Organized Track System (PACOTS) routes within Fukuoka FIR. JCAB stated that 10 minutes longitudinal time separation without MNT is planned to be introduced on all routes in the Pacific Oceanic airspace of Fukuoka FIR. However, the safety of this separation has been verified only on the condition that position reports are obtained at least every 40 minutes, but not all PACOTS routes meet this requirement. JCAB/ENRI reported that prior calculations had been conservative and it now had calculated more accurate risk, which it reported at the ICAO RASMAG/16 meeting, held from 20-23 February 2012 in Bangkok, Thailand.

### RNP4 30/30NM Lateral/longitudinal Distance-based Separation

2.3 JCAB presented a joint FAA/JCAB paper providing an update to the trial implementation of cross-boundary use of Required Navigation Performance 4 (RNP-4) 30/30 Nautical Mile (NM) distance-based separation at the Anchorage/Fukuoka FIR boundary. JCAB stated that operational trial for expansion to cross-boundary usage between the Oakland Air Route Traffic Control Center (ARTCC) and Fukuoka Air Traffic Management Center (ATMC), which began in May 2011, has been very successful. JCAB also noted that Anchorage ARTCC and ATMC are planning to implement the trial use of cross-boundary Automatic Dependent Surveillance (ADS) 30/30 distance-based separation at Anchorage/Fukuoka FIR boundary. JCAB stated that the procedures for RNP-4 capable aircraft are the same as those used during the ADS 30/30NM separation standard trial between Oakland ARTCC and ATMC.

2.4 30NM lateral/longitudinal distance-based separation and Automatic Dependent Surveillance – Contract (ADS-C) Climb Descend Procedures (CDP) both require capabilities such as ADS-C, CPDLC, and RNP-4. It was noted that some operators, even with RNP-4 operational approval, are not filing for RNP-4 in their flight plans due to the perception that the additional data link charges for increased ADS-C surveillance are not offset by operational savings. Based on work with its operators, the FAA presented information that quantified lost efficiency due to lack of FANS and RNP-4 equipage. A number of operators indicated that the presentation gave them information that would be beneficial in deciding to increase RNP-4 equipage in their oceanic fleet.

### User Preferred Routes

2.5 The FAA provided a joint paper providing an update on UPR operations in association with PACOTS Tracks in the Pacific Region. The FAA reported that the use of UPRs is expanding rapidly. FAA noted that some operational requirements had been placed on UPRs, and stated that air navigation service providers (ANSPs) need to review these operational requirements to determine if they are still necessary. FAA noted that UPRs were not always the most efficient use of airspace. One example, the FAA noted, was the Central East Pacific (CEP) UPRs – 7 UPR routes between California and Hawaii. The FAA stated that removing the organization that ATC provides would reduce efficiency. The FAA then provided details on specific UPRs:

- a) PACOTS Track 3 Operational Trial – The operational trial began February 2012. The average fuel burn savings was 829 kilogram (kg) per flight, with a potential savings of 3.91 million kg annually.

- b) Eastbound UPRs – These include PACOTS Track 1 UPR operational trials and PACOTS Track 3/14/15 UPR operational trials. The FAA noted that there is improved efficiency with the eastbound PACOTS. All the eastbound PACOTS except PACOTS Track 2 were replaced by UPRs. PACOTS Track 2 was left as a dividing line between traffic flows.
- c) Westbound PACOTS – PACOTS Tracks E/F UPR paper trials took place in July and November 2011. For July, the average fuel burn savings was 880 kg, while in November the average fuel burn savings was 299 kg.
- d) Japan-Australia UPRs – On 26 July, RJGG (Chubu Centrair International Airport) and RJBB (Kansai International Airport) will be added to the trials.
- e) In summary, the overall fuel savings from UPRs is over 32.8 million kg annually.

2.6 FAA and JCAB reviewed a list of flight planning constraints associated with UPRs and other routing requirements within the Anchorage and Oakland FIRs presented by the International Air Transport Association (IATA). Most of the constraints remained valid, while action will be taken to relax a few of the constraints. The FAA and JCAB acknowledged the need to constantly review system constraints and update published guidance material when necessary.

#### Automatic Dependent Surveillance – Contract Climb Descend Procedures

2.7 The ADS-C CDP trial is being demonstrated operationally by manually applying ADS-C CDP requirements without requiring software changes to the oceanic ATC system, Ocean21, and is limited to use between Required Navigation Performance 4 (RNP-4) certified aircraft. With the limiting factor being the required use between pairs of RNP-4 qualified aircraft, the FAA reported that it has been difficult to meet the criteria necessary for applying ADS-C CDP.

2.8 Currently, only 25.5% of the aircraft in the Oakland Oceanic Control Area (OCA) flight plan with RNP-4 equipment and only 50% of the aircraft use ADS-C. While traffic scenarios present themselves to the controller where it would be useful to apply the ADS-C CDP procedure, the equipment is lacking on one or both of the aircraft. More aircraft data needs to be collected to validate the application of the procedure. The current trial has been extended for a second year to gather more data. Another possibility would be to use flight test bench simulators to create scenarios for application of the ADS-C CDP and gather analysis data in that way. Discussions of this option are ongoing.

#### ADS-B In-Trail Procedures (ITP)

2.9 The FAA described the efforts and progress to expand the ADS-B ITP operational trial that is being conducted in the Pacific. The FAA reported that it commenced the ADS-B ITP operational trial in the southern portion of the Oakland Oceanic FIR on 15 August 2011 and in December 2011, the trial was expanded to include the entirety of the Oakland Oceanic FIR. The FAA noted the Fukuoka FIR is a large region of airspace region adjacent to the Oakland Oceanic FIR and is transited by most, if not all, flights from Asia to the U.S. Airline operators who are equipped with ADS-B ITP systems would likely reap benefits from being able to execute ADS-B ITP climbs (or descents) in the Fukuoka FIR. The FAA requested that Japan considers joining the ADS-B ITP operational trial by enabling support for ADS-B ITP climbs/descents in the Fukuoka FIR.

2.10 JCAB hoped that Japanese airlines would be encouraged to increase their RNP-4 authorization to take advantage of this procedure. JCAB stated it had not started trials yet, but would begin trials, first with Japanese airlines in Japan, then expand to other foreign airlines. To make this happen, JCAB stated it needed to amend its ATC standards. JCAB stated it would assemble a working group to begin the trial as soon as possible. The FAA stated it was willing to share safety information with JCAB.

#### Dynamic Airborne Reroute Procedures (DARP) Operations

2.11 The FAA presented a joint paper providing an update on the operational DARP trial between Oakland ARTCC and Fukuoka ATMC. The FAA reported that on 30 April 2011, FAA and JCAB began an operational trial for use of DARP for flights between Japan and Hawaii, with published procedures to test its application. JCAB presented details on the DARP trial between Hawaii and Japan, reporting that between 28 December 2011 and 6 May 2012, there had been 39 procedures in the DARP trial. When utilized, the DARPs have been very successful.

2.12 The FAA reported that JCAB is developing a system upgrade to allow it to issue DARP clearances. JCAB DARP capability is expected to be completed near the end of 2012. The FAA stated that Fukuoka ATMC and ZOA will consider operator requests to trial DARPs between different city pairs other than Hawaii to Japan.

#### Asia and Pacific Initiative to Reduce Emissions (ASPIRE)

2.13 The partners met on 25-27 January 2011 to officially kick-off the ASPIRE-Daily program and have since validated and published five city pairs: Auckland, NZ – San Francisco, CA (four stars), Los Angeles, CA – Singapore (four stars), Los Angeles – Melbourne, AUS (four stars), Sydney, AUS – San Francisco (four stars) and Singapore – Melbourne (four stars). Additional city pairs are currently under development.

2.14 The 2011 ASPIRE Annual Report was published on 30 September 2011. The report includes updates from the ASPIRE Partners on work program activities, a section on shared metrics for fuel and emissions, as well as information on the ASPIRE demonstration flights conducted by AEROTHAI and Thai Airways and plans for future enhancements. Also included, is the ASPIRE Work Programme, which highlights various initiatives such as enhanced and expanded DARP, UPR expansion, and ADS-B ITP that will lead to future enhancements in the region. The 2012 Strategic Plan is currently under development and will be published this summer. The 2012 Annual Report will follow in late September.

2.15 JCAB hosted and chaired the 2012 Annual Meeting from 5-7 June in Tokyo.

#### Air Traffic Flow Management Coordination

2.16 JCAB indicated that since last September, ATMC has conducted a paper trial that has put useful information gathered from international telephone conferences (telcons) to practical use in its domestic ATM operational plan and vice versa. ATMC is planning to conduct an operational trial this year. As a result, ATMC will be able to continuously provide and share effective ATM information with the FAA Air Traffic Control System Command Center (ATCSCC), as well as other facilities concerned. JCAB stated that ATMC will examine the results of the trial, to include any unusual or contingency situations that may have been handled. This will enable ATMC to identify what kind of information is of value and necessary, including how to gather it and present it on the telcons. JCAB indicated that ATMC and ATCSCC would improve these practice telcons based on this trial examination.

2.17 The information provided in this paper is a condensed summary of discussion topics from the IPACG meetings since the last ATM/AIS/SAR meeting. For more detailed information, visit the IPACG website at:

[http://www.faa.gov/about/office\\_org/headquarters\\_offices/ato/service\\_units/enroute/oceanic/ipacg/](http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/oceanic/ipacg/)

2.18 IPACG/37 and FIT/24 will be hosted by the JCAB later this year, in Okinawa, Japan, from 29 October to 2 November.

### **3. CONCLUSION**

3.1 The meeting is invited to note the information contained in this paper and discuss any relevant matters, as appropriate.

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