

**Twenty-Third Meeting of the
Informal South Pacific ATC Co-ordinating Group (ISPACG/23)**

Santiago, Chile, 26-27 March 2009

Agenda Item 4: Review Open Action Items

USER PREFERRED ROUTE (UPR) IMPLEMENTATION UPDATES

(Presented by Federal Aviation Administration)

SUMMARY

This paper provides information on the status of User Preferred Routes (UPRs) between the United States of America and the South Pacific, Asia and New Zealand/Caledonia, Asia and Hawaii, and Japan and Australia.

1. INTRODUCTION

- 1.1 In December 2000, use of UPRs began between the United States and the South Pacific, replacing Pacific Organized Track System (PACOTS) generated tracks in that region of the Oakland OCA/Flight Information Region (FIR).
- 1.2 In September 2007, operational use of UPRs began between Asia and New Zealand/Caledonia.
- 1.3 In August 2008, operational trials of UPRs began between Asia and Hawaii. PACOTS tracks are also being generated during the trial phase.
- 1.4 An 8-week paper trial to test operational feasibility and efficiencies of UPRs between Japan and Australia concluded on 2 June 2008. The projected start date for operational trials of UPRs in this area is May 2009.
- 1.5 UPR use is also being considered in other areas of the Oakland OCA/FIR.

2. DISCUSSION

- 2.1 Between the United States and the South Pacific, UPR application occurs without any significant ANSP imposed restrictions.
- 2.2 Between Asia and New Zealand/Caledonia, the following restrictions apply to UPR operations:
 - (1) Within the Fukuoka OCA:
 - (a) Aircraft may file a UPR random route east of ATS route A337.
 - (b) Aircraft on a UPR random route east of ATS route A337 must join an ATS route by 30 North latitude (waypoints NOGAK, UPDOB, KAKNI)

- (c) Aircraft west of ATS route A337 must be on one of the established ATS routes.
 - (2) Within the Oakland OCA aircraft transiting through Guam Center and Approach Control (CERAP) must file reporting points on the Guam/Oakland boundary.
 - (3) Within the Guam Control Area (CTA), aircraft may flight plan UPRs at or above F310. Aircraft below F310 must flight plan via an ATS route in the Guam CTA.
 - (4) Aircraft must flight plan to avoid airspace released for military exercises, as charted or published in an International Notice to Airmen (NOTAM).
 - (5) Within the Port Moresby CTA aircraft may file UPR routings on or east of ATS route G205.
 - (6) Within the Brisbane and Nadi FIRs, aircraft must be FANS equipped.
- 2.3 Between Asia and Hawaii, the following restrictions apply to UPR operations:
- (1) For eastbound flight planning between Asia and Hawaii -
 - (a) Operators must file one of the following Oceanic Transition Routes (OTR) and connect to appropriate ATS routes:
 - KAGIS OTR11 DRIVR OTR22 ETRON;
 - KAGIS OTR11 RIPKI/GARRY;
 - VACKY OTR13 SEALS;
 - SMOLT OTR15 MORAY;
 - FORDO OTR17 FERAR; or
 - at or south of MERED G223 TONIK.
 - (b) Eastbound UPRs may flight plan on PACOTS track 3 and then diverge so as to remain at least 50 NM south of PACOTS track 3.
 - (c) Aircraft on PACOTS tracks between Asia and the Continental U.S. have priority over Asia-Hawaii UPR aircraft for altitude assignment.
 - (d) Aircraft on PACOTS tracks between Asia and Hawaii do not have priority over Asia-Hawaii UPR aircraft for altitude assignment.
 - (e) The UPR route must be flight planned to remain laterally north of ATS route A450 or flight plan via A450 between TAAVR and KATHS.
 - (f) The UPR shall be planned to incorporate a published waypoint on the Honolulu control facility boundary.
 - (g) The UPR shall be planned to avoid military special use airspace when active.
 - (h) The necessary information regarding available Hawaiian gateway fixes will be sent to participating aircraft operators prior to the generation of PACOTS tracks 11/12.
 - (i) The UPR shall terminate with the appropriate Hawaiian STAR.
 - (2) For westbound flight planning between Hawaii and Asia -
 - (a) Aircraft on PACOTS tracks between Asia and Hawaii do not have priority over Hawaii-Asia UPR aircraft for altitude assignment.
 - (b) The UPR shall begin with the appropriate Hawaiian SID.

- (c) The UPR route must be flight planned to remain laterally north of ATS route A450 or flight plan via A450 between KATHS and TAAVR.
- (d) The UPR shall be planned to avoid military special use airspace when active.
- (e) The necessary information regarding available Hawaiian gateway fixes will be sent to participating aircraft operators prior to the generation of PACOTS tracks A/B.
- (f) The UPR shall be planned to incorporate a published waypoint on the Honolulu control facility boundary.
- (g) Aircraft departing Hawaii after 2330 UTC must flight plan so as to remain 50 NM south of PACOTS track F.
- (h) In the Fukuoka FIR, operators shall file appropriate ATS routes and connect to one of the following OTRs:
 - CALMA G344 CELIN OTR9 ABETS OTR11 SCORE;
 - ETRON OTR9 ABETS OTR11 SCORE;
 - RIPKI/GARRY OTR11 SCORE;
 - SEALS OTR13 VACKY;
 - MORAY OTR15 SMOLT;
 - FERAR OTR17 FORDO; or
 - at or south of TONIK G223 ADKAK.

2.4 Between RJAA and YSSY/YBBN/YBCS/YBCG, the following restrictions are proposed to apply to UPR operations:

- (1) The North and Southbound UPRs must remain in the Fukuoka, Oakland, Guam, Port Moresby, Honiara and Brisbane FIRs.
- (2) The flying time between filed reporting points must not exceed 80 minutes.
- (3) Aircraft routes must include filed reporting points for each Control Center boundary crossing in the FPL.
- (4) Aircraft must flight plan to avoid airspace released for military exercises, as charted or published in an International NOTAM.
- (5) Within the Fukuoka CTA:
 - (a) The UPR paper routes will start or end at the Waypoints along latitude 30 North and follow existing conventional ATS, departure and arrival routings north of 30N.
 - (b) Aircraft may file a UPR random route at least 50nm east of ATS route B586, or:
 - (c) Aircraft on or west of ATS route B586 must be on one of the established ATS routes in the Fukuoka CTA.
- (6) Within the Guam CTA aircraft may flight plan UPRs at or above F310. Aircraft at F300 and below must flight plan via ATS Routes in the Guam CTA.

(7) Within the Brisbane FIR:

- (a) To segregate UPR traffic with domestic traffic operating along the eastern coast of Australia (e.g. Brisbane – Cairns), the following gates will be used for Japan/Australia UPRs:
 - “150 NM Cairns” (i.e. BENKI, MEMIG, PUPEB), HM, KELPI, or SETER
- (b) Aircraft departing Australia are to plan ATS routes (or CS DCT BENKI) to the gate then UPR
- (c) Aircraft arriving Australia may plan UPR to the gate then via ATS route (or BENKI DCT CS)

2.5 Other PACOTS Tracks are under different UPR trial stages.

- (1) Operational UPRs with tracks 14/15 aircraft are targeted for implementation in July 2009.
- (2) Paper Trials are occurring for tracks H/I/J/K aircraft.

2.6 Impact of ANSP Operational Requirements:

- (1) ANSP operational requirements necessary to manage air traffic operations may have a negative impact on the efficiency of UPRs. As ANSPs gain more experience with UPR city-pairs it may be possible to reduce or eliminate some of the operational requirements. Over time operational requirements need to be reviewed to evaluate their need.

2.7 User Preferred Routes Operational Annual Savings:

- (1) Russian Trans East UPRs
 - 1.09 Million kg Fuel
 - 3.41 Million kg CO₂ Emissions
- (2) California – South Pacific UPRs
 - 1,272 kg Fuel (ASPIRE average savings/flight)
 - 4,015 kg CO₂ Emissions (ASPIRE average savings/flight)
- (3) Asia – New Zealand/Caledonia UPRs
 - 2.09 Million kg Fuel
 - 6.54 Million kg CO₂ Emissions
- (4) Asia – Hawaii UPRs
 - 2.27 Million kg Fuel
 - 7.1 Million kg CO₂ Emissions
- (5) RJAA – YSSY/YBBN/YBCG/YBCS UPRs
 - 1.89 Million kg Fuel
 - 5.91 Million kg CO₂ Emissions

(6) Total Annual Savings

Over 7.34 Million kg Fuel

Over 22.97 Million kg CO₂ Emissions

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- (1) Note the successful implementation of these UPRs and the significant fuel savings and reduced environmental impact achieved.
- (2) Discuss UPRs and ways to improve their efficiency.