

**Summary of Discussions of the
Twentieth Meeting of the
Cross Polar Trans East Air Traffic Management Providers Working Group
(CPWG/20)
27-29 October 2015 – Anchorage, Alaska, USA**

1. Background

1.1 The Twentieth Meeting of the Cross Polar Trans East Air Traffic Management (ATM) Providers Working Group (CPWG/19) was hosted by Federal Aviation Administration (FAA) at the Anchorage Marriott, Anchorage, Alaska, USA, 27-29 October 2015. The schedule included meetings of the Air Navigation Service Providers (ANSPs), the Pacific Project Team (PPT) and the CPWG/20 plenary meeting.

1.2 The CPWG was established to provide a forum for ANSPs and airspace users to meet and explore solutions for improving air traffic services (ATS) to aircraft which operate between North America and Asia via Cross Polar (CP) and Russian Trans East (RTE) routes.

1.3 Ms. Leah Moebius, facilitated the meeting. Attendees included representatives of the ANSPs from Canada, Iceland, Norway, Russia, and the United States (US); the International Air Transport Association (IATA); international airlines and operators, and industry. Due to a scheduling conflict, Japan was unable to attend the meeting and sent their regrets. The list of participants is at **Appendix A**.

2. Opening of the Meeting

2.1 Mr. Kerry Long, FAA Regional Administrator for the Alaskan Region, welcomed participants to Anchorage and the 20th CPWG and provided opening remarks on the ten year anniversary of the Group, noting the collaborative work of participants to improve safety and efficiency, and wished the CPWG continuing success in its endeavors.

3. Agenda Item 1: Review and Approve Agenda

3.1 The following agenda was approved by the meeting:

Agenda Item 1: Review and approve Agenda
WP/01: CPWG/20 REV1

Agenda Item 2: Administrative Matters (CPWG/19 Report)
WP/02: CPWG/19 Report

Agenda Item 3: Summary of Pertinent Issues from the ANSPs Meeting and other relevant meetings
IP/04: Ten Years of CPWG – UAL
IP/05: Changes in Anchorage Arctic Flight Information Region – ZAN
IP/12: Lost Fuel Savings Due to Lack of RNP 4 & FANS-1a Equipage

Agenda Item 4: Report from the Pacific Project Team Meeting

Agenda Item 5: Provide Status on CPWG/19 Actions
WP/03: CPWG/19 Action Item List
CP01-08C: ATFM Collaboration between FAA and State ATM – FAA
CP04-31: Update on Radar – State ATM
CP06-02: ATOP Update – ZAN

CP07-02: To Be Discussed Under Agenda No. 6
 CP10-08: Update on JCAB and State ATM LOA for ATFM – State ATM
 CP10-13: Update on CPDLC/ADS-C – State ATM
 CP10-14: IP/07: Update re: Alternate Airports and Russian AIP – IATA
 CP12-04: TAUG Update – ZAN
 CP12-06: Coordination between ATMB and State ATM – State ATM
 CP14-02: AIDC Implementation Update – State ATM
 CP14-08: Update on Cold Lake Military Airspace – NavCanada
 CP14-11: Update on Eliminating Restrictions – FAA
 CP14-12: IP/08: Implementation of ADS-C CDP – FAA
 IP/09: Implementation of ADS-B ITP - FAA
 CP15-03: RTE and Arctic Traffic Count Data – IATA & FAA
 CP15-06 & CP19-05: IP/03: Outcomes of VOLKAM15 Exercise & VOLKAM16 Planning
 - State ATM
 WP/09 Volcanic Ash and PACOTS Generation Procedures - FAA
 CP15-08: Update on ICAO EURNAT Volcanic Ash Task Force & MET G Meetings –State
 ATM
 CP15-09: IP/10: Planned Rocket Launches from Norway -Avinor
 CP17-10: Update on Departure Messages (ANSP Discussion) - FAA
 CP18-02: WP/08 Change Reroutes - FAA
 CP19-01: ANSP Procedures re: Solar Radiation & Descents (ANSP Discussion) –
 NavCanada
 CP19-02: Form R Update - IATA
 CP19-04: Update re: Contingency Routes & LOA Status – State ATM
 CP19-06: Update re: SatVoice – Nav Canada

Agenda Item 6: ATS Route Catalogue Update

CP07-02: Entry/Exit Fixes on FIR Boundaries
 IP/2: New Entry/Exit Fixes between Magadan and Anchorage – State ATM
 IP/06: Traffic Manage Response to ATS Route B802, R827 & R830 - ZAN
 IP/11: Airspace Structure of the Russian Federation- State ATM
 WP/05: New Entry/Exit Point between PIREL and MAGUN_ State ATM
 WP/07: ATS Route Catalogue – State ATM
 WP/06: New Fixes and Trans-East Routes – State ATM

Agenda Item 7: 2016-2017 Cross Polar Work Program

Respective ANSPs' efforts for improving communications in the area
 Development of a single separation standard in region
 Improve/Increase efficiencies and predictability on Polar Routes

Agenda Item 8: Communications, Navigation, Surveillance (CNS) and Air Traffic Management (ATM) issues

ANSP Updates/Presentations

- o NAV CANADA Update
- o FAA Anchorage Update
- o State ATM Corporation Update
- o ISAVIA Update
- o Avinor Update

 Airline Updates/Presentations

- o IATA/Aircraft Operators

 Industry Updates

- o ARINC

Agenda Item 9: Other Business

Agenda Item 10: Next Meeting

4. Agenda Item 2: Administrative Matters

4.1. The following Working Papers (WPs), Information Papers (IPs), and presentations were provided to the meeting:

Paper Number	Agenda Item	Action Number	Title of Paper	Presented by
WP/01	1		Proposed Agenda and Timetable	FAA
WP/01REV			Detailed Agenda	FAA
WP/02	2		Summary of Discussions from CPWG/19	FAA
WP/03	2		CPWG/19 Action Item List	FAA
WP/04	7	ANSP MEETING	Proposed CPWG Work Program	FAA
WP/05	6		New Entry/Exit Point between PIREL and MAGUN	State ATM
WP/06	6		New Fixes and TransEast Routes	State ATM
WP/07	6		State ATM ATS Route Catalogue	State ATM
WP/08	5	CP18-02	Change Reroutes	FAA
WP09	5		Volcanic Ash and PACOTS	FAA
IP/01			List of Documentation	
IP/02	6		New Entry/Exit Fixes Magadan and Anchorage	State ATM Corporation
IP/03	5		Update on VOLKAM15 & VOLKAM16	State ATM
IP/4	3		Last 10 years of the CPWG.	United
IP/05	3		Changes in the Anchorage Arctic Flight Information Region	FAA-ZAN

Paper Number	Agenda Item	Action Number	Title of Paper	Presented by
IP/06	6		FAA Traffic Management Response to LETUN & BEKAR	FAA-ZAN
IP/07	5	CP10-04	Improve Efficiency	IATA
IP/08rev	5	CP14-02	Implementation Automatic Dependent Surveillance-Contract (ADS-C) Climb/Descent Procedure (CDP)	FAA
IP/09	5	CP14-02	Implementation of Automatic Dependent Surveillance-Broadcast (ADS-B) In-Trail Procedure (ITP)	FAA
IP/10	5	CP15-09	Planned rocket launches from Norway	Avinor
IP/11	5		Airspace Structure of the Russian Federation	State ATM
IP/12	3		Lost Fuel Savings Due To Lack Of RNP 4 & FANS-1A Equipage	FAA
IP/13			Global Flight Tracking	FAA
PRESENTATIONS				
	8		ARINC	Michael Tiongco, SFO ARINC
	8		NAV CANADA ANSP Update	NavCanada

Paper Number	Agenda Item	Action Number	Title of Paper	Presented by
	8		NAV CANADA ADS-B Update	NavCanada
			Avinor ANSP Update	Avinor
	8		Avinor Free Route Airspace	Avinor
	8		State ATM Traffic Statistics	State ATM
			Jeppesen Briefing	Jeppesen
			ZAN Update	FAA-ZAN
			ZOA Update	FAA-ZOA
			Arctic FIR	FAA-ZAN

4.2. Copies of all WPs and IPs, as well as additional information presented during the meeting were made available on the CPWG website at http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/air_traffic_services/oceanic/ross_polar/

5. Agenda Item 3: Summary of Pertinent Issues from the ANSPs Meeting and other relevant meetings

ANSP Meeting 26 October 2015

5.1. The meeting was informed of several topics of discussion that occurred during the ANSP meeting. A number of these topics were to be covered in greater detail during the plenary meeting and additional discussion would take place during the plenary and discussions on specific action items. One item in particular, unmanned free balloons, was discussed in greater detail during review of the ANSP meeting. The ANSPs reviewed and updated the CPWG Work Program, which was made available to all participants. Details of the review are reflected in Agenda Item 3 and Appendix E.

5.2. The meeting agreed to make the following changes to CPWG Work Program Item 2 – (Improve/Increase Efficiencies for Cross Polar and Russian Far East Air Traffic):

- Delete the reference to develop RVSM transition procedures as those procedures have been implemented within the CPWG area of concern.
- Delete the reference to Polar Minimum Time Tracks
- Add a reference to Establish ATS Transit Routes

Unmanned Free Balloons

5.3. In July 2015, a scientific research ship notified the FAA of its plans to launch over 200 light unmanned free balloons into the North Pacific and Arctic airspace. These balloons and their payload weighed approximately one pound (500 grams) and were expected to ascend to 82,000 feet. During the ANSP meeting, a discussion took place regarding ANSP responsibilities for separation between unmanned free balloons and aircraft and the expectation of aircraft operators. Requirements for operators of unmanned free balloons are provided in ICAO Annex 2, Appendix 5 and those requirements vary significantly depending on the weight category of the balloon (light, medium, or heavy). Additionally, air traffic provisions are set forth in the ICAO Procedures for Air Navigation Service- Air Traffic Management (PANS-ATM) Doc. 4444 16.2. It was noted that for the operation in question, there was no requirement for notification by the launch proponent nor for any action by Anchorage Center. However, for medium or heavy balloons there are a number of different notification and tracking requirements required for both the launch proponent and the ANSP.

5.4. While the PANS-ATM discusses separation of an aircraft from a medium or heavy unmanned free balloon in a surveillance environment when the balloon is identified or its exact position is known, there are no provisions for non-surveillance airspace. The ANSPs present noted that they do not provide separation services in remote or oceanic non-surveilled airspace but that they will provide advisories via NOTAM or broadcast when they receive position report information. The group noted that additional follow-up with Japan would be necessary to determine the type of service they provide in their oceanic airspace. The FAA noted that the provisions in the PANS-ATM were unclear on what type of separation to apply in the surveillance environment and took an action to follow up with ICAO informally to determine if there was a specific separation criteria expected (e.g. five miles, three miles, etc.). United Airlines asked if there were ongoing discussions at ICAO or in other regions given the proliferation of medium and heavy balloon activity and also asked about the validity of discussing UAS activity within the CPWG. The FAA noted that discussions have taken place at the Informal South Pacific Air Traffic Control Coordination Group (ISPACG) and that there is ongoing rulemaking activity that may affect US air traffic procedures but that there has not been any action at the ICAO level the FAA is aware of. In regards to UAS activity, the FAA noted a recent announcement by the FAA to require registration of UAS's and also noted that there is currently a global focus on this issue and that adding it to the CPWG work program may be duplicating other efforts.

New Action Item CP20-02 opened (*Separation for unmanned balloon operations in remote/unsurveilled airspace*).

Ten Years of CPWG

5.5. Mr. Gene Cameron from United Airlines presented IP/04, which provided a review of the development of the CPWG, its growth, and accomplishments over the past ten years. It was noted the CPWG has enjoyed steady growth in participation from both ANSPs and operators. Delta commented on the efforts and progress of the CPWG, noting how these improvements have helped operators, especially this past year where Polar traffic was at one of its highest levels.

Update on Changes to the Arctic FIR

5.6. Anchorage Center presented IP/05 which outlined recent changes to the types of services provided within the Arctic FIR. Prior to these changes, the FAA treated airspace below FL230 as uncontrolled and provided Class A service at FL230 and above. Due to demand from a number of operators, specifically those seeking to conduct resource exploration activities in the Arctic, Anchorage changed the types of service provided between 1,200 feet MSL to FL230 and at FL600 and above. Anchorage noted that between 1,200 feet MSL and 17,999 and at FL600 and above, operators can expect Class E type ATC service. Between FL180 and FL600, operators can expect Class A ATC services.

6. Agenda Item 4: Report from the Pacific Project Team (PPT) Meeting

6.1 The FAA provided a brief overview of discussions that took place during the Tenth Meeting of the Pacific Project Team (PPT/10). Details of presentations and discussions can be found in the PPT/10 Summary of Discussions.

7. Agenda Item 5: Provide Status on CPWG/19 Actions

CP01-08C: ATFM collaboration between FAA/ATO and State ATM

7.1. State ATM advised that they were working with the FAA's office in Moscow to provide comments. The FAA stated that they are looking forward to receiving comments from State ATM and hope to sign the Letter of Agreement prior to CPWG/21. .

CP04-31: Implement use of radar procedures between Magadan Area Control Centre (ACC) and Anchorage ARTCC (ZAN)

7.2. State ATM advised work is ongoing with expected implementation in 2018.

CP06-02: Implement ATOP in the Arctic FIR

7.3. Anchorage advised that their original planned implementation of ATOP in the Arctic slipped from September 2015 to the first quarter of CY2016 due to some internal issues. These issues have been identified and the facility is working to resolve.

CP07-02: Add additional entry/exit fixes on the FIR boundaries

7.4. State ATM and Anchorage Center presented information on the establishment of new entry/exit fixes between the Magadan FIR and Anchorage Arctic FIR, new ATS routes, and associated flight planning requirements. In IP/02, State ATM announced the planned opening of two new fixes, LETUN and BEKAR, on 12 November 2015. The IP also presented information on the establishment of four new ATS routes to support the use of these new entry/exit fixes. Anchorage Center presented IP/06 which provided information on fix pair filing requirements over the two newly developed entry/exit fixes, as well as other fix pair filing requirements that will be published via the Anchorage Arctic FIR NOTAM. The airlines thanked both State ATM and Anchorage for their ongoing efforts.

CP10-08: Improved contingency collaboration between State ATM and Japan Civil Aviation Bureau (JCAB)

7.5. State ATM noted that they are still working with JCAB on this action.

CP10-13: Expand CPDLC/ADS-C capability for Magadan FIR and install CPDLC/ADS-C at Murmansk

7.6. State ATM reported that Magadan is fully ADS-C and CPDLC capable and noted that plans to expand ADS-C and CPDLC at Murmansk are on target for 2018.

CP10-14: Provide information on minimum level of service maintained outside operational hours for emergency diversions

7.7. IATA's Moscow office presented IP/07 which updated efforts to address concerns raised by aircraft operators on the availability of certain aerodromes for use during emergency diversions. IATA reported that it had worked closely with the Federal Air Transport Agency (FATA) of the Russian Federation and State ATM and that an Aeronautical Information Circular (AIC) was published to clarify policy. The airlines thanked IATA, FATA, and State ATM for their efforts and the action was closed. **Closed Action Item CP10-**

CP12-04: Monitor changes to Track Advisory Users Guide (TAUG)

7.8. Anchorage advised that they are in the process of updating the TAUG in collaboration with Oakland Center and expect to have a revised publication shortly.

CP12-06: Coordination between State ATM and ATMB

7.9. State ATM noted that it has been working with China's Air Traffic Management Bureau (ATMB) to establish a coordination meeting between China, Mongolia, Russia, and IATA (CMRI). The ATMB was agreeable to hosting the CMRI meeting some time in 2016 but a specific date has not been set. Given the common goals of CPWG and Route Development Group East (RDGE), IATA Moscow asked about the possibility of conducting a combined RDGE/CPWG meeting with an expanded Russian delegation. The group noted that trying to coordinate such a meeting would be extremely difficult. The airlines expressed frustration with trying to open up new routes and entry fixes into China, noting that the current limitations result in a funneling of traffic resulting in delays and other efficiency issues. United noted that it has requested a new entry point west of SIMLI but progress has not been made. State ATM noted that Mongolia and the ATMB conducted a recent technical where Mongolia proposed use of a new entry fix at NIXAL but ATMB declined the proposal. It was also noted that TELOK was developed as a cross-polar fix; however, it has never been approved for use. IATA and the FAA both noted continuing efforts to engage and encourage participation by ATMB at CPWG and in other forums. IATA stated that they had received notification that ATMB regretfully could not attend CPWG/20 but would make an effort to attend CPWG meetings in CY2016.

CP14-02: Establish flight data exchange between facilities

7.10. State ATM noted that work is ongoing with plans to implement AIDC between Sapporo ACC and Khabarovsk in 2018. Following implementation with Sapporo, State ATM expects implementation with Anchorage in 2018 as well.

CP14-08: Improve flexibility of military airspace

7.11. Edmonton advised that they have begun issuing NOTAMs when the Cold Lake military airspace becomes inactive so that operators can flight plan through the airspace. Nav Canada requested that this action be closed. **Closed Action Item CP14-08.**

CP14-11: Eliminate requirement to flight plan over named or latitude/longitude (lat/long) fixes at 141W

7.12. Anchorage Center noted that this was dependent on ATOP implementation in the Anchorage Artic FIR. However, once ATOP is implemented Anchorage will begin to evaluate and eliminate restrictions.

CP14-12: Consider expanding trial for ADS-C Climb/Descend Procedures (CDP) to ZAN Airspace

7.13. The FAA presented information on its planned implementation of the Automatic Dependent Surveillance-Contract (ADS-C) Climb/Descent Procedure (CDP) in IP/08. The group was reminded that the original trial of the ADS-C CDP conducted at Oakland Center was a manual trial involving a full one-page checklist, which was rather cumbersome and resource-intensive. The FAA advised that progress to automate the ADS-C CDP checklist in the ATOP platform was on target, with expected software delivery to facilities in January-February 2016 and that air traffic procedures are under development. The FAA also noted that the ICAO process to adopt the ADS-C CDP as a globally recognized separation standard was underway, with expected publication in the PANS-ATM Doc. 4444 in November 2016. It is expected that all three FAA oceanic FIRs will be ready to use the ADS-C CDP by mid CY-2016; implementation was dependent upon publication of an ICAO State Letter or publication in the PANS-ATM approving ADS-C CDP. The FAA stated that it would consider conducting the ADS-C CDP as an operational trial until it can implement the procedure. The airlines asked if the FAA expected to roll out the ADS-C CDP at all facilities at the same time. The FAA felt that each facility would need to determine when they could begin to use the procedure based upon controller training.

7.14. The FAA also presented an update on implementation of the Automatic Dependent Surveillance-Broadcast (ADS-B) In-trail Procedure (ITP) in IP/09. The meeting was advised that besides equipment requirements, a main difference between the ADS-B ITP and ADS-C CDP is that the ITP is a pilot-requested procedure, whereas the CDP can be controller-initiated. A manual trial of the ADS-B ITP is currently underway at Oakland Center and software to automate the procedure in ATOP is on track for delivery to facilities in January-February 2016. The FAA noted that the ADS-B ITP is already published in the PANS-ATM and that its procedures are the same with one exception- the PANS-ATM states that an aircraft cannot turn while performing the ITP maneuver; however, ATOP has been designed to check for turns that degrade separation, so if an aircraft performing an ITP has a turn in its route, if separation will be maintained or increased, the controller will be able to issue the clearance. The FAA expects operational use at all three facilities in mid-CY2016. The airlines noted that one difficulty with ADS-B ITP is that it requires ADS-B In capability, which is generally an optional part of the avionics package for most aircraft, and the business case for equipping is difficult to establish. The FAA noted that it anticipated wider use of the ADS-C CDP but that it saw value in the ITP as another tool at the disposal of the controller and the pilot to improve efficiency. There was additional benefit seen in other regions, like the New York West (WATRS) airspace, where ADS-C equipage is lower.

CP15-03: Provide information on RTE and Arctic FIR traffic count data

7.15. Information on traffic count data was presented during the Pacific Project Team meeting and is an ongoing action in that forum. IATA and Anchorage agreed to close this action. **Closed Action Item CP15-03.**

CP15-06: Consider utilizing the ATM VACP Template in the development of Volcanic Ash Contingency Plan for NOPAC and RTE.

7.16. State ATM presented IP/03 which reviewed the outcomes of the VOLKAM15 exercise and planning information for VOLKAM16, planned for April 2016. Based on the debrief of the VOLKAM15

exercise, six recommendations were developed for improving processes. Planning for the VOLKAM16 exercise included a simulated eruption using two volcanic ash plumes to provide more challenges to airline flight planning and development of reroutes. State ATM noted that they were working to develop a reroute matrix, which the airlines stated they were looking forward to given the workload challenges created by significant reroutes. The airlines also noted the value of these exercises to resolve issues and improve operations during a real-world event. Based on the outcomes of the VOLKAM16 exercise, a contingency plan with best practices will be developed for presentation at CPWG/21. During discussions on contingency routes, the airlines noted that it was important that whatever routes are developed, they include published waypoints, otherwise they are not useful to the operators.

7.17. During the 41st Meeting of the Informal Pacific Air Traffic Control Coordination Group (IPACG), Oakland Center and JCAB discussed PACOTS generation and volcanic ash, seeking input from IATA and aircraft operators. Oakland Center presented WP/09 that gave an overview of the IPACG/41 discussions, announced development of a Critical Event Contact List (CECL), and asked for input on proposed procedural guidance on PACOTS generation during volcanic ash events. Oakland noted that the CECL would be used to send email notification of a planned collaborative decision making (CDM) teleconference to discuss critical events. CPWG participants felt that the CDM process was crucial in determining when/if PACOTS will be generated around an ash plume. United Airlines asked if Oakland Center would suspend certain UPRs if PACOTS are affected; it was noted that the decision to fly through/over/under an area of forecasted volcanic ash was ultimately up to the operator based upon its safety management procedures, so UPRs would not be suspended. American Airlines noted that the height and width of the forecasted ash plume affects this decision. During this discussion, it was noted that the current telcon event trigger of FL240 may be too high and consideration may need to be given to lowering to 10,000. Oakland Center asked that operators provide any feedback to them on the proposed guidance and CECL directly. Update to be provided at CPWG/21.

CP15-08: Provide an update from Air Traffic Management Group (ATMG) with respect to NAT Volcanic Ash Contingency Plan

7.18. Isavia noted ongoing efforts to create a Common European Contingency Plan in the ICAO European-North Atlantic Region (EURNAT). A proposal was to have been completed following a meeting in September 2015; however, the proposal has not been distributed. It is expected that EURNAT Volcanic Ash Task Force will review the proposal and make a final decision in December 2015.

CP15-09: Streamline the process for establishing danger areas through NOTAM process

7.19. Avinor presented IP/10 regarding planned rocket launch activity in the cross-polar region. Avinor noted that it has been working with the launch proponent to shorten the length of proposed impact and ensure timely cancellation if a “no-go” decision has been made. The FAA noted that during the ANSP discussion it is difficult for ANSPs to manage activity without close collaboration since ANSPs cannot deny access to international airspace. The ANSPs discussed drafting a proposal to ICAO over developing guidance on prioritization because of the impact to aircraft operators; however, it was also noted that ANSPs and operators may also find such guidance to be a detriment. It was felt there may be an opportunity to have an informal discussion during a proposed space launch symposium in March 2016. Avinor requested that this action be closed and a new action to monitor rocket launch activity be opened. **Closed Action Item CP15-09** pending opening of **new Action Item CP20-01** (ANSPs provide update on launches).

CP17-10: Update on Departure Messages Provided to State ATM and JCAB

7.20. The FAA stated that based on data it has received from JCAB and State ATM, issues surrounding DEP messages seem to be improving. Some facilities, such as New York Center, are still finalizing procedures but is expected that they will be in compliance within the next several months. It was also noted that certain facilities do not have dedicated flight data positions, so a solution for those facilities would probably be more in the long term. The FAA asked State ATM to provide more data with dates and specific call signs if it still experiencing issues so that the problem can be further addressed. The FAA will also follow up with JCAB and an update will be provided at CPWG/21.

CP19-01: Solar Radiation Events

7.21. At CPWG/19, Edmonton ACC asked other ANSPs for any data or experiences that they had in response to solar radiation events. Edmonton noted that they had experienced a number of events where aircraft were entering their airspace at higher altitudes (e.g. FL360) and then requested FL300 due to solar radiation issues. Other ANSPs noted that they did not have specific procedures and just handled requests on a real-time basis. Delta Airlines noted that they have a contingency plan based on information from space weather forecasts and meteorologists, they will request lower altitudes or file further south as a mitigation. Joe Kunches from ASTRA noted that while we're approaching a solar minimum, radiation still exists because it is made from two components- the sun and galactic cosmic rays. Mr. Kunches also noted that lower altitudes do decrease the amount of radiation (e.g. 25% less at FL320 vs. FL 360), but time is also a factor.

CP19-02: Simplification of R Form Process

7.22. State ATM noted that they had discussed the issue but there did not seem to be consensus amongst the airlines as to the best way forward, as some carriers expressed that they did not desire a change. Additionally, State ATM had requested participation by three airlines for a trial procedure but had yet to receive any volunteers. IATA Moscow stated it would draft a new letter requesting assistance.

CP19-04: Development of Contingency Routes

7.23. State ATM noted that while a contingency route was developed, there were issues regarding flight checking of that route brought forward by JCAB. Additionally, State ATM said that they and JCAB were evaluating a proposed letter of agreement (LOA) and taking some time off from finalizing while they evaluated different scenarios.

CP19-06: SATVOICE in Edmonton

7.24. Nav Canada noted that it was in the process of developing a two-phase SATVOICE test, with Phase 1 commencing in Summer 2016 and Phase 2 in Spring 2017. **Closed Action Item CP19-06.**

CP18-02: Discussion on ANSP Change Message Processes

7.25. The FAA presented WP/08 which provided an overview of previous discussions and work done at CPWG to address significant airborne reroutes and asked CPWG participants to participate in a panel-type discussion to develop potential solutions. The major points of discussion are as follows:

- a. A key issue raised during the incident involving American Airlines Flight 175 (AAL175) was the length of time it took for the flight to receive their requested reroute. The FAA noted that within the CPDLC environment, reroutes really aren't an issue since the route is presented to the controller and approval or modification is much easier than in the voice environment. The group was reminded that there are issues with hearback/readback, frequency congestion, and resources within the voice/domestic environment that make it difficult to issue the type of lengthy reroutes associated with oceanic flights. An additional issue noted by the FAA was the lack of familiarity with oceanic routes/procedures at some domestic facilities. Nav Canada that their domestic CAATS system doesn't look beyond the oceanic entry point for eastbound aircraft since Gander ACC issues oceanic routing via their oceanic clearance procedure, so there may be challenges for eastbound reroutes. Oakland Center suggested the following:
 - i. Develop a volcanic avoidance route that is identified by name versus full lat/long and named waypoints, much as is done today with the North Atlantic Organized Track System (NAT OTS). For instance the pilot would request clearance to an entry fix, the volcanic avoidance route, and an exit fix- e.g. "AAL175 request direct DACEM VAR1 OATIS direct Narita".
 1. Will require testing for FAA
 2. Input needed from JCAB as to whether this is a viable solution.
 - ii. Request reroute to an oceanic entry fix using up to four fixes domestically and request further routing closer to oceanic entry.
- b. The group discussed the use of change (CHG) messages, air file (AFL), and new flight plan (FPL) filing to pass requested route information to current or downstream ANSPs. As noted during previous CPWG discussions, there are a number of different difficulties with trying to obtain and input lengthy reroutes in the voice environment. Based on information received via the CHG message matrix, most ANSPs noted that they will reject CHG messages or new flight plans on airborne aircraft or aircraft within a certain time of departure/coordination. Oakland Center suggested that one possible solution to relaying new flight plan information would be to send a new flight plan with an amended callsign containing the new routing (e.g. AAL175A). The flight crew would then advise ATC of the new flight plan and they could then issue/input the new routing. The aircraft operators noted that this may not work with their systems but they would investigate the possibility. Another possibility discussed was use of an AFL message. The FAA noted that there were issues within the ATOP system in accepting an AFL message if the aircraft is active and the aircraft operators noted that they weren't sure if they could support AFLs. State ATM noted that they expect aircraft operators to use a CHG message to convey a requested route change. The FAA noted that it had seen past instances where an aircraft operator initiates a CHG message and the aircraft begins flying the route in the CHG message without ATC clearance and reminded the group that there was agreement amongst the ANSPs that reroute requests should come directly from the pilot to ATC. The operators stated that flight crews should not accept CHG messages as a clearance and should be requesting routing clearance via ATC. In order to avoid filed vs. flown type errors and the possibility of introducing multiple/duplicate flight plans into the system, it was asked if flight operators could wait until receiving confirmation from the flight crew that they have received the requested reroute. Aircraft operators said they would evaluate their procedures and consider the request. Nav Canada stated that they were in the process of determining if

they could accept CHG messages for airborne aircraft. The FAA noted that the ultimate solution was to treat these types of reroutes as Dynamic Airborne Reroute Program (DARP) events. However, that requires CPDLC and AIDC capability.

- c. It was noted that it may be valuable to go back and look at lessons learned from the volcanic eruptions in Iceland a few years ago. The FAA will follow up with Isavia, Avinor, and other North Atlantic providers.
- d. The group discussed development of a connectivity chart that indicates AIDC and other capabilities. Additionally, it was suggested that further improvements to the reroute matrix be developed during the VOLKAM16 exercise.
- e. It was agreed to consolidate suggestions from CPWG/20 and improve CHG message matrix for additional discussion at CPWG/21.

7.26. New Action Items:

- *CP20-02: Separation for unmanned balloon operations in remote/unsurveillance airspace*
- *CP20-01: ANSPs provide update on launches*
- *CP20-03: ATM requests three additional east transit fixes entry*

7.27. The updated Action List is at **Appendix C**.

8. Agenda Item 6: ATS Route Catalogue Update

8.1. State ATM presented information in IP/11 regarding traffic count data, route improvements, and airspace restructure. Of note were the consolidation of several ACCs and implementation of 79 new ATS routes in 2015.

8.2. State ATM proposed opening of a new entry/exit point between PIREL and MAGUN on the Murmansk/Reykjavik FIR boundary (WP/05). Aircraft operators noted the growth of traffic in the region has increased and welcomed the proposed changes. Emirates took an action to check with their operations and report back to State ATM on any desired changes they have to the proposal.

8.3. State ATM provided information and requested feedback on proposed changes to its ATS Route Catalog. Aircraft operators noted their appreciation for the continuing efforts of State ATM to expand routes and improve efficiencies.

8.4. State ATM presented WP/06 proposing the creation of three new Russian Trans-East (RTE) entry/exit fixes and four new ATS routes for implementation in 2016. Anchorage Center stated that they approved the location of the new fixes, noting that the two northern fixes will be set for 15 minute track loading times initially with expected reduction to ten minutes and the third fix could expect ten minute track loading when implemented. There was discussion about radar coverage in the area of the proposed fixes and State ATM noted that they would check into coverage. The airlines were asked if they had specific city pairs that would utilize these new fixes and they noted that while they did not have specific pairs, they anticipated wide use.

9. **Agenda Item 7: 2014-2015 Cross Polar Work Program**

- 9.1 State ATM provided an update to their websites (<https://app.matfmc.ru/publique/TransEast/flights.aspx> and <https://app.matfmc.ru/publique/CrossPolar/flights.aspx>) showing the trans-east and cross-polar loading tool. The websites shows all entry and exit fixes with bi-directional traffic loading. State ATM demonstrated that operators could select a fix and then select an aircraft call sign, and a display indicating route and actual time over fixes would be presented. The airlines noted the availability of the information and thanked State ATM for their efforts.
- 9.2 The FAA presented an update to the CPWG Work Program as agreed to during the ANSP meeting. The updated CPWG Work Program and Planning Chart are at **Appendix E**.

9.3 State ATM noted ongoing efforts to reduce separation in the Magadan FIR with RNP10 and RNP4 criteria.

10. **Agenda Item 8: Communications, Navigation, Surveillance (CNS) and Air Traffic Management (ATM) issues**

NAV Canada

- 10.1. NAV Canada provided an update to the meeting on activities since CPWG/19:
- SATVOICE DCPC test phase soon
 - One phone number for EG ACC routes to sector
 - Feasibility of lowering ADS-B coverage from 280 to 200 over Hudson Bay, same with medium term conflict prediction, clearances for CPDLC.
 - FL290 and above released at Cold Lake airspace.
- 10.2. Nav Canada also gave an ADS-B update:
- Space-based Feb 2018 out only business case for polar, over North Atlantic first.
 - Aireon is company, 51% owned by Nav Canada.
 - 66 LEO satellites, 100% coverage, 6-7 spares. Ten minute transition if they lose one.
 - 100 million dollar savings over North Atlantic.
 - Alert service will be free like ELT. Service will commence in 2018. NATS involved.
 - Iridium has rain fade issues, any problems with that ZOA. Space X will launch soon. Four tiers of cost. Cost needs to be less than savings, estimated 1 in 4.

FAA – Anchorage ARTCC (ZAN)

10.3. FAA provided the meeting an overview of ZAN operations regarding website, staffing, equipment, and volcanic activity. LETUN and BEKAR 0915Z on 11/12/2015. United wants lead time for NOTAMs on these routes. Kodiak launch facility is now Pacific Spaceport Complex Alaska.

State ATM

10.4. State ATM provided updates to the group on its ATC modernization and traffic counts since the last meeting.

Isavia

10.5. Isavia ANSP presentation, Iceland unlimited ADS-B surveillance prior to next CPWG/21.

Avinor

10.6. Avinor ANSP Norway presented updates since the last meeting including their new ATM system update that was implemented on March 5, 2015 and has had no serious outages at this time. This will help to transition from paper strips to electronic strips. Avinor also presented a briefing on proposed

North European Free Route Airspace which includes airspace in Norway, Sweden, Denmark, Finland, Estonia and Latvia within which users may freely plan a route between a defined entry point and a defined exit point. Avinor noted that the intention was to implement free route airspace for the North European region in November 2015. But based on software updates, the effort will be initially in Norway FIR and Bodo Oceanic until the pending system updates have been implemented.

FAA – Oakland ARTCC (ZOA)

10.7 ZOA presentation update by Dennis Addison, 18 of 22 PACOTS have been replaced with UPR procedures. As part of the Global Flight Tracking initiative the RNP10 ADS-C reporting rate was changed to 14 minutes. Dennis discussed the Dynamic Airborne Reroute Procedure (DARP). Oakland is beginning a Trial on Nov 6, 2015 to compare the efficiency of PACOTS using the 06Z upper winds forecast versus the 00Z forecast. Oakland currently uses the 00Z forecasts due to TMU staffing.

ARINC

10.8 ARINC provided an overview on the SFO Communications Center mission to provide communications in the U.S. Oceanic Airspace to the U.S. FAA Oakland (ZOA) and Anchorage (ZAN) ARTCCs including information on international voice service, domestic voice service, HF/VHF Coverage Areas.

Jeppesen

10.9 Jeppesen provided briefing on history of charts for the Cross Polar and Trans-East Regions including the 1st edition polar plotting chart from July 5, 2002. The briefing highlighted the overall growth and accomplishments that have taken place first through RACGAT and now with the Cross Polar Working Group.

11. Agenda Item 9: Other Business

11.1 No other business.

12. Agenda Item 10: Next Meeting

12.1 The next meeting is planned for 17-20 May 2016 in Paris, France at the ICAO European-North Atlantic Regional Headquarters.

13. Closing of the Meeting

13.1 Ms. Moebius thanked all participants for their support and participation in the meeting.

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**Twenty-First Meeting of the Cross Polar Trans East Air Traffic Management Providers' Work Group
(CPWG/21)**

(Montreal, Canada 18-20 May 2016)

Agenda Item 5: Provide Status on CPWG/20 Actions

Action Item List

(Presented by Federal Aviation Administration)

SUMMARY

This working paper presents the Action Item List from CPWG/20, and asks the CPWG members to update the information as appropriate.

1. Introduction

1.1 The Summary of Discussions of the Twentieth Meeting of the Cross Polar Trans-East Air Traffic Management Providers Working Group (CPWG/20) provided an updated Action Item List. This list is provided as Attachment A.

2. Action by the Meeting

2.1 The meeting is invited to update the Action Item List for inclusion in the CPWG/20 Summary of Discussions.

CPWG/20 Action List

Action Number	Capacity Enhancement Goal	Supporting Goal Initiatives	Information/Status	Responsible Organization	Action Pending	Action Due	Status
CP01-08C	Administration	ATFM collaboration between FAA/ATO and State ATM	State ATM and FAA reported on the status of the ATFM Annex and LOA. Will be discussed bilaterally.	FAA/State ATM	Work is in progress to update the agreement and coordinate with FAA AGC for signing in Spring 2015. An update at CPWG/20.	- May 2016	Open
CP04-31	Improve Efficiencies	Implement use of radar procedures between Magadan ACC and Anchorage ARTCC	State ATM reported that the target date for implementation of radar procedures is 2018. Power supply issues addressed and work ongoing. Dependent on weather but estimated implementation is on target for 2018	State ATM	Update to be provided to CPWG/21	May 2016	Open
CP06-02	Improve Efficiencies	Implement Ocean 21 in the Arctic FIR	Anchorage ATOP "Sector 64" planned for implementation 2 nd quarter of 2015 with additional testing.	FAA	Implementation now planned for Spring 2016. The FAA will provide an update to CPWG/21	May 2016	Open
CP07-02	Improve Efficiencies	Add additional entry/exit fixes on the FIR boundaries	State ATM opened two additional entry/exit points on LETUN and BEKAR.. Additional entry exit LISKI and FRENK.	State ATM/FAA	Update to be provided to CPWG/21	May 2016	Open

Action Number	Capacity Enhancement Goal	Supporting Goal Initiatives	Information/Status	Responsible Organization	Action Pending	Action Due	Status
CP10-08	Contingency Response	Improved contingency collaboration between State ATM and JCAB	JCAB and State ATM agreed on LOA for ATFM. Will continue to work on a bilateral basis. Proposed LOA sent to FATA. Currently under review.	JCAB /State ATM/FATA	Update to be provided to CPWG/21 Proposed LOA under review by FATA and will update at the next meeting.	May 2016	Open.
CP10-13	Improve Communications	Expand CPDLC/ADS-C capability for Magadan FIR and install CPDLC/ADS-C at Murmansk.	ADS-C/CPDLC services were expanded for all Magadan sectors in 2014 A CPDLC/ADS-C Workstation will also be added at Murmansk ACC in 2018.	State ATM	Magadan has ADS-C/CPDLC in all sectors. AIP amendment in process but is operational. Currently used as backup comm/surveillance method. Murmansk in scheduled for 2018. State ATM to provide an update on Murmansk work station at CPWG/21	May 2016	Open
CP12-04	Improve Efficiencies	Monitor changes to Track Advisory Users Guide	ZAN reported that there had been no changes to the TAUG since the last meeting. Once State ATM provides the 2 new fixes, changes will be made to the TAUG.	FAA	FAA noted publication of 2 new fixes are pending and TAUG will be updated accordingly. FAA will provide updates on the TAUG at CPWG/21.	May 2016	Open

Action Number	Capacity Enhancement Goal	Supporting Goal Initiatives	Information/Status	Responsible Organization	Action Pending	Action Due	Status
CP12-06	Improve Efficiencies	Coordination between State ATM and ATMB	During CPWG/12, it was agreed to pursue proposal for a new entry/exit point east of SIMLI. United Airlines suggested that W223 westbound, which is now a domestic route, be made an international route.	State ATM/ATMB IATA	This is a bilateral issue to be discussed outside of CPWG. State ATM has not been able to meet with ATMB. No progress but hopeful to resume talks with ATMB soon. Update at next meeting. State ATM noted that China agreed to host the CMRI meeting. There were a number of issues in addition to those in the action but no specific date has been set other than sometime in 2016.	May 2016	Open
CP14-02	Improve communications	Establish flight data exchange between facilities	State ATM will work with Sapporo to implement AIDC in 2018. Magadan / Anchorage AIDC will be implemented after Sapporo in 2018 Vancouver/Oakland: Successful test conducted early May with expected operational readiness on 28 May 2015.	State ATM/ FAA/NAV CANADA	Updates to be provided to CPWG/21 AIDC between Khabarovsk and Sapporo in 2018. Anchorage and Magadan will sometime after 2018. Implementation of NAM ICD between Oakland and Vancouver completed.	May 2016	Open
CP14-11	Improve Efficiencies	Eliminate restrictions where possible	Eliminate requirement to flight plan over named or lat/long fixes at 141W	FAA	No new information. Update to be provided to CPWG/21	May 2016	Open

Action Number	Capacity Enhancement Goal	Supporting Goal Initiatives	Information/Status	Responsible Organization	Action Pending	Action Due	Status
CP15-06	Develop CPWG Volcanic Ash Contingency Plan	Consider utilizing the ATM VACP Template in the development of Volcanic Ash Contingency Plan for NOPAC and RTE.	State ATM proposes Volcanic Ash Contingency Plan for Trans-East, NOPAC, & PACOTS as template. JCAB and State ATM expect progress on agreement between Fukuoka and PK FIR in early 2016.	State ATM JCAB FAA/ZAN NAV CANADA	JCAB, State ATM & FAA are reviewing and providing comments to the proposed template. VOLKAM16 next exercise will have 2 ash plume clouds to test flight plan and CHG messages for timely reroutes. Exercise scheduled for April 21-22, 2016. An update to be provided at CPWG/21	May 2016	Open
CP15-08	Develop CPWG Volcanic Ash Contingency Plan	Provide an update from ATMG with respect to NAT Volcanic Ash Contingency Plan.	Isavia reported that the IVATF agreed to transfer responsibility for volcanic ash avoidance or decision to fly or not fly from ATM to Aircraft Operators. An amendment to PANS ATM was approved and is expected to take effect in November 2014	Isavia	Isavia provided information on exercise done and they had issued a NOTAM and the MET office issues SIGMETs based on volcanic ash concentrations. Some concerns regarding SIGMETs. Isavia to provide update on any additional exercises at CPWG/19. An update on ICAO EURNAT Volcanic Ash Task Force will be provided at CPWG/21.	May 2016	Open

Action Number	Capacity Enhancement Goal	Supporting Goal Initiatives	Information/Status	Responsible Organization	Action Pending	Action Due	Status
CP15-09	Improve Safety	Streamline the process for establishing danger areas through NOTAM process	<p>Discussions underway to limit negative impact and pre-coordinate danger areas with ANSPs. Need to develop process. Some issues with recent Norwegian Space Agency launch in November 2014.</p> <p>Affected ANSPs will coordinate comments and feedback to space agency and develop harmonized process for the next campaign scheduled for November 2015. Look at process developed by ZOA to ensure harmonization. FAA to coordinate with Commercial Space Office to provide additional information/assistance.</p> <p>ICAO to provide any resulting guidance from the HLSC in February 2015 and Space Forum in March.</p>	<p>NAV CANADA FAA State ATM Norway Isavia ICAO EURNAT</p>	<p>FAA presented IP on collaborative process used to work with launch proponent to mitigate the impact of their operations on other airspace users. Illustrated process used by Oakland Center to analyze request and mitigate as much impact to aircraft operators as possible. IATA noted the increase and impact in other regions, such as Indian Ocean. Isavia noted that the paper really shows the need for collaboration/cooperation. The FAA noted that it would be useful to have clear guidance and support from ICAO.</p> <p>Avinor provided an update on new launch scheduled for November/early December 2015. An update to be provided at CPWG/21. This item will be closed at next meeting and a new item will be opened for monitoring future launches. (CP20-XX)</p>	May 2016	Open

Action Number	Capacity Enhancement Goal	Supporting Goal Initiatives	Information/Status	Responsible Organization	Action Pending	Action Due	Status
CP17-10			State ATM requests FAA to look at lack of departure messages being provided to Russian and JCAB	FAA	<p>FAA worked with State ATM to determine if issue was automation or AFTN address. FAA Memo sent to Centers directing departure messages to go to State ATM and JCAB.</p> <p>State ATM provided update on status of received departure messages and noted improvements but some facilities fail to comply with the requirements. State ATM will provide further update at CPWG/20.</p> <p>JCAB is compiling their results and will provide at CPWG/20.</p> <p>Improvements noted but issues still present. Additional information from JCAB and State ATM requested for CPWG/21.</p>	May 2016	Open

Action Number	Capacity Enhancement Goal	Supporting Goal Initiatives	Information/Status	Responsible Organization	Action Pending	Action Due	Status
CP18-02		Harmonized process for coordination of route changes to In-Flight Aircraft and issues with use of CHG messages	ANSPs to provide information on process or procedure used for accepting CHG Message and RTE CHG.	All ANSPs IATA	<p>Develop a chart that illustrates how each ANSP processes change messages in various flight states and how route changes are processed to subsequent facilities. This consolidated information will be used for discussion and determination of harmonized process at next CPWG/19 meeting.</p> <p>Based on input received by ANSPs, it was agreed that additional information was needed for full picture.</p> <p>A revised Chart will be developed to include:</p> <ul style="list-style-type: none"> - How are the airlines coordinating into other airspace - Current process used by Operators; - What resources are available for coordination (ATCSCC, MATMC) - What process ANSPs would like to see used. <p>Develop and improve the matrix used for VOLKAM16 and ANSPs to investigate ability to accept AFL messages. AOC's to investigate use of AFL or FPL messages using modified call signs and follow up with ISAVIA and AVINOR on lessons learned from 2010 Icelandic volcanic eruptions.</p>	Oct 2015	Open

Action Number	Capacity Enhancement Goal	Supporting Goal Initiatives	Information/Status	Responsible Organization	Action Pending	Action Due	Status
CP19-02	Improve Efficiencies			IATA	<p>Following simplification of Form R process, IATA followed up with additional requests:</p> <ol style="list-style-type: none"> 1. Consider electronic filing of R Forms via SITA or email. . State ATM request IATA Moscow Office submit letter to FATA for trial via SITA. UAL and Emirates to participate. 2. United also requested 40 day timeframe for approval be reduced to 20- days <p>3 airlines needed to participate in trial IATA Moscow representative to follow up with FATA. Update to be provided at CPWG/21.</p>	May 2016	OPEN

Action Number	Capacity Enhancement Goal	Supporting Goal Initiatives	Information/Status	Responsible Organization	Action Pending	Action Due	Status
CP19-04	Develop CPWG Volcanic Ash Contingency Plan		J	FAA JCAB State ATM	<p>JCAB presented information on contingency routes. JCAB asked IATA to survey operators about proposed route. Some questions about whether route would be permanent or contingency- State ATM suggested that it be published as a route available for use with ATC coordination. Airlines asked about need to change altitudes- more work to be done update at CPWG/20</p> <p>Based on discussions during meeting, JCAB and State ATM will work to develop new routings (Utilizing routes west of volcanoes and possible relaxation of flight level restriction in R220) for exercise.</p> <p>Temporary LOA was successful between ZAN, PK, and Fukuoka. It was determined that a permanent LOA should be developed. JCAB has requested that new fixes/ routes are flight checked.</p>	May 2016	OPEN
CP20-01				All ANSPs	ANSPs to provide updates on recent Rocket Launches as available	May 2016	Ongoing

Action Number	Capacity Enhancement Goal	Supporting Goal Initiatives	Information/Status	Responsible Organization	Action Pending	Action Due	Status
CP20-02				FAA	FAA and other ANSPs discussed handling medium and heavy unmanned balloon operations in remote or unmonitored airspace. FAA to follow up informally with ICAO regarding type of separation to be provided in monitored airspace.	May 2016	
CP20-03				State ATM FAA	New additional entry/exit fixes and ATS Routes at Russian Trans-East	May 2016	

**Twentieth Meeting of the Cross Polar Trans East Air Traffic Management Providers' Work
Group
(CPWG/20)**

(Anchorage, USA, October 26-30 2015)

Agenda Item 6: ATS Route Catalogue

AIR TRAFFIC SERVICES ROUTE CATALOGUE

(Presented by STATE ATM CORPORATION)

SUMMARY

This working paper presents status and information on route proposals since the Eleventh Meeting of the Cross Polar Trans East Air Traffic Management Providers' Work Group (CPWG/20) for the CPWG information and discussion.

1. Introduction

1.1 Since the Ninth meeting of the CPWG, the State ATM Corporation has provided an Air Traffic Services (ATS) Route Catalogue for the Polar Region for discussion and use during the meetings.

2. Discussion

2.1 **Attachment A** is the proposed ATS Route Catalogue for the CPWG's discussion and consideration.

3. Recommendation

3.1 The meeting is invited to:

- a. review the information contained in this Working Paper;
 - b. recommend changes or additions to the ATS Route Catalogue at **Attachment A**.
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Anchorage, USA
October 26-30 2015

ATS ROUTE CATALOGUE

Section 1. Proposed Cross Polar Route Segments (CPRS)

Item	Reference	Route description	Proposed by	Objectives/Comments	Benefits	FIR	Target Dates
1	2	3	4	5	6	7	8
1	CPRS/2	RAMEL (8430.0N 16858.4W) - 8456.2N 16653.4E - 8331.IN 12736.3E - BESON (7921.0N 10431E) (bidirectional use)	State ATM Corporation. 2008	a) Implementation will be possible only after elaboration of procedures between oceanic sectors of Magadan, Murmansk ACCs and Anchorage ARTCC; b) Implementation is unreasonable. No stable communications. Safety concerns.		RUS USA	Implementation is deemed unreasonable.
2	CPRS/3	NALIM (8620.4N 16858.4W) - KUBON (8000.0N 12452.9E) - IRMAK (7601.4N 11830.0E) - ROMUL (7355.5N 11557.3E) – SALAK (7158.0N 11407.0E) – LALEN (6930.0N 11252.9E) – OLEMU (UERO 6831.0N 11228.0E) – RULAT (UERP 6624.0N 11202.0E) – IRBIS (6455.4N 11056.7E) - GIBRI (6318.6N 10953.4E) - DORIP (6054.2N 10831.5E) – PEKUN (6002.0N 10805.0E) - CI (Ust-Kut NDB) - URAMO (5542.9N 10526.0E) - MX (ZHIGALOVO) – then along the existing airways (bidirectional use)	State ATM Corporation. 2008	a) Open a new cross polar route; b) 8620.4N 16858.4W - 7600.4N 11839.6E segment is approved and ready for implementation; c) SALAK – LALEN – OLEMI – RULAT segment is under review and international coordination; d) IATA Top Priority		RUS USA	Published as G112 on Nov 1, 2010 (NALIM (8620.4N 16858.4W) – KUBON (8000.0N 12452.9E) segment is unavailable before Dec 16, .2010
3	CPRS/12	MAGUN (8500N 03200E) - BESED (8133.0N 05535.1E) - ANODI (7730.0N 06600.0E) – PINOG (7340.1N 06911.4E) - REFRI (6728.6N 07128.0E) - GIMIR (6528.9N 07242.0E) - R348 (H=8600 - 16100) – GISUR (6120.6N 07324.2E) - 5855.4N 07345.9E – ML (Chapayev NDB	State ATM Corporation. 2009	a) Establish a new route for flying from India, Pakistan and UAE to North America East Coast; b) Approved, ready for implementation after resolution of comm. Issues between Murmansk and Mys Kamennyi;		RUS ISL	Published as G706 (NOTAM A3432/10) on Jul 1, 2010

Item	Reference	Route description	Proposed by	Objectives/Comments	Benefits	FIR	Target Dates
1	2	3	4	5	6	7	8
		5615.0N 07357.0E) - A302 - G487 – DAKIN (5409.5N 07224.3E) (bidirectional use)		c) Will be assigned R706 designator			
4	CPRS/13	RIMAG (6828.0N 07335.8E) - OLDEM (6721.0N 07310.2E) – (6638.0N 07255.0E) - GONOK (6620.1N 07250.4E) - GIMIR (6528.9N 07242.0E) – LEBUL (6450.7N 07148.6E) - RILIS (6321.6N 06954.7E) - URMAN (6146.2N 06806.9E) – ATREM (6058.6N 06714.0E) – BAGEN (6638.0N 07255.0E) – LUGIK (5943.0N 06556.0E) (bidirectional use)	Emirates Airlines	a) Open a new route; Approved and ready for implementation		RUS	Published as A947 on Nov 1, 2010
5	CPRS/14	SORLI (6228.0N 06602.0E) - BELEG (6341.3N 06642.0E) - MASUL (6455.1N 06639.8E) - SH (Salekhard VORDME 6635.3N 06636.4E) - GOPUS (6726.1N 06639.2E) - ADERA (6851.9N 06644.3E) - TUMOK (7113.0N 06654.5E) – LUGOT (7202.3N 06649.5E) - ANODI (7730.0N 06600.0E) (unidirectional use to ANODI)	Emirates Airlines	a) Transition from a new Crosspolar route; b) Approved and ready for implementation; c) Will be assigned G359 designator		RUS	Published as G359 (NOTAM A3429/10) on Jul 1, 2010
6	CPRS/15	PIREL (8000.0N 03500.0E) – ANODI (7730.0N 06600.0E) – then on B483 (bidirectional use)	State ATM Corporation. 14.05.2009	a) Open a new routing from China to North America; b) approved and ready for implementation. c) Will be assigned R705 designator		RUS NOR	Published as R705 (NOTAM A3427/10) on Jul 1, 2010
7	CPRS/16	ANODI (7730.0N 06600.0E) - MELAM (07610.7E 7657.0N) - TINEM (7459.4N 07610.7E) – DOSON (7331.0N 08022.9E) (bidirectional use)	State ATM Corporation. 14.05.2009	a) A new transition from Crosspolar route; b) ANODI - MELAN approved and ready for implementation			Published as R705 on Nov 1, 2010
8	CPRS/17	MX (ZHIGALOVO NDB 5448.0N 10509.0E) – GUSIN (5106.0N 10614.0E) (bidirectional use)	State ATM Corporation. 14.05.2009	a) Shorten the route by 15 km b) Approved for implementation as a route by coordination with ATC; c) Will assigned B934 designator		RUS	Implemented on March 11, 2010 (NOTAM A0404/10)
9	CPRS/18	NIBUL (5913.1N 06239.8E) – 5738.2N 06147.9E – EKB (Yekaterinburg/Koltsovo VORDME 5644.6N 06047.9E)	State ATM Corporation. 14.05.2009	a) Shorten the route by 13 km; b) Under review		RUS	Published as G552 on May 05 2011

Item	Reference	Route description	Proposed by	Objectives/Comments	Benefits	FIR	Target Dates
1	2	3	4	5	6	7	8
		(between 2100-7500 m unidirectional to NIBUL. between 8100-15100 m bidirectional)					
10	CPRS/19	RIVAS (7140.8N 08425.3E) - SIVDI (6951.1N 08736.9) – TESLA (6720.5N 09155.5E) – SAKAT (6526.6N 09432.4E) – OKASA (6225.8N 09728.3E) – KOSUM (5756.3N 10044.6E) - BRT (Bratsk VORDME) (bidirectional use)	Continental Airlines April 2008	a) Open up a route for flying from South-East Asia to North America; b) Under review		RUS	Published as R705 on Nov 1, 2010
11	CPRS/20	DAKIN (5409.5N 07224.3E) - ML (Chapayev NDB 5615.0N 07357.0E) - NJC (Nizhnevartovsk VORDME 6056.6N 07628.1E) (bidirectional use)	Emirates Airlines 2009	a) Open up a route for flying from Middle East to North America; b) Under review		RUS	Published as G715 on Nov 17, 2011
12	CPRS/21	BEBIR (6355.2N 06501.8E) - GUDIR (6734.5N 07001.6E) - NIDRA (7127.5N 07708.7E) (bidirectional use)	Emirates Airlines 2009	a) Shorten the existing route b) Under review		RUS	Published as G497 on Nov 17, 2011
13	CPRS/22	8530.0N 16858.6W	FAA December 4. 2009	a) Open up a new entry fix for Crosspolar routes b) Under review		RUS USA	4 th quarter 2010 NPRS/27
14	CPRS/23	8330.0N 16858.6W	FAA December 4. 2009	c) Open up a new entry fix for Crosspolar routes a) Under review		RUS USA	4 th quarter 2010 NPRS/28
15	CPRS/24	7800.0N 16858.6W	FAA December 4. 2009	d) Open up a new entry fix for Crosspolar routes a) Under review		RUS USA	4 th quarter 2010 NPRS/29
16	CPRS/25	7300.0N 16858.6W	FAA December 4. 2009	e) Open up a new entry fix for Crosspolar routes a) Under review		RUS USA	4 th quarter 2010 NPRS/30
17	CPRS/26	NIKIN (8100.0N 16858.6W)	FAA December 4. 2009	a) Relocate NIKIN b) Under review c) Relocation of NIKIN is unreasonable		RUS USA	4 th quarter 2010 Realignment is unjustified
18	CPRS/27	LISKI (7000.0N 16858.6W)	FAA December 4. 2009	d) Relocate LISKI e) Under review a) Relocation of LISKI is unreasonable		RUS USA	4 th quarter 2010 relocation of the entry fix is unnecessary

Item	Reference	Route description	Proposed by	Objectives/Comments	Benefits	FIR	Target Dates
1	2	3	4	5	6	7	8
19	CPRS/28	833000N1685823W - 740039N 1360232E - ... a) NA (Nizhneyansk NDB 7125.0N 13608.0E) – G226; b) GIKSI (7141.7N 12854.0E) – G491 (B489. G493) (bidirectional use)	State ATM Corporation. 09.02.2010	a) Open a new cross polar route; a) Under review		RUS USA	Published as G493 and G812 on Nov17, 2011
20	CPRS/29	AMATI (780000N 1685824W) - GILOD (755416N 1720106E) - LUNOG (720705N 1565953E) - NOGDA (711205N 1544019E) – OTNIR (690000N 1500037E) - SIPVI (652256N 1441620E) - NERPA (643256N 1430619E) (двухсторонняя)	State ATM Corporation. 09.02.2010	b) Open a new cross polar route; a) Under review		RUS USA	Published as B806 on Okt 18, 2012
21	CPRS/30	7300.0N16858.4W – LURET (7037.5N 14753.8E) – R351 (B933 . G7. G494 . G495. G806) (bidirectional use)	State ATM Corporation. 09.02.2010	a) Open a new cross polar route; b) Under review c) unacceptable at the moment		RUS USA	unacceptable at the moment
22	CPRS/31	ORVIT – 7500.0N 17000.0E -6500.0N 15300.0E – BANOT - .. B223 - LUMIN	Continental Airlines April 2010	a) New York – Tokio traffic; b) distance saving- 35.8 м.м. c) accepted for review d) unacceptable at the moment		RUS	unacceptable at the moment
23	CPRS/32	ORVIT - 7700.0N 18000.0E - 7000.0N 16100.0E - 6500.0N 15500.0E - 6000.0N 15100.0E – ROMEM .. B337 - ANIMO	Continental Airlines April 2010	a) New York – Tokio traffic; b) distance saving - 40.2 м.м. c) accepted for review		RUS	unacceptable at the moment
24	CPRS/33	DEVID (B480) - GIKSI .. G491 or G493 or B489	United Airlines April 2010	a) Transition routes for flying between Mid West US/US East Cost and Asia b) Accepted for review		RUS	unacceptable at the moment
25	CPRS/34	a) RAMEL (G491) - TAKUN (G226); b) PETUL - RUTIN (G226); c) UNELI (G491) - HA (G226)	United Airlines April 2010	a) Transition routes for flying between Mid West US/US East Cost and Asia b) Accepted for review		RUS	unacceptable at the moment
26	CPRS/35	a) NIKIN (G226) - UNELI; b) TAKUN (G226) - TIGNA (G491); c) HA (G226) - TEMGA (G491)	United Airlines April 2010	a) Transition routes for flying between Mid West US/US East Cost and Asia b) Accepted for review		RUS	unacceptable at the moment

Item	Reference	Route description	Proposed by	Objectives/Comments	Benefits	FIR	Target Dates
1	2	3	4	5	6	7	8
27	CPRS/36	a) ORVIT (G494) - TAKUN (G226); b) DILSA - RUTIN (G226)	United Airlines April 2010	a) Transition routes for flying between Mid West US/US East Cost and Asia b) Accepted for review		RUS	unacceptable at the moment
28	CPRS/37	ANODI-ABERI	Emirates Airlines 19.05. 2010	a) Accepted for review b) Reviewed. Implementation is possible.		RUS	Published as G359 on Sep 22, 2011
29	CPRS/38	a) NELTI-A299-DONUS-TINRI далее G359 or b) NELTI- TINRI .. G359	Emirates Airlines 19.05. 2010	a) Accepted for review.		RUS	under review
30	CPRS/39	a) W104 TARSA-NOR b) W98 DOSON-KUTET	Continental Airlines April 2010	a) assign an international status b) streamline DAKIN – DEVID route for Delhi/Mumbai – Newark daily flights c) transition from DEVID		RUS	Published as a) R200 as b) G498 on Nov17, 2011
31	CPRS/40	B358 LANEP – IKADA	British Airways 17.01.11	Remove flight level restrictions between FL350-530		RUS	Маршрут исключен
32	CPRS/41	LURUN (852500N 1685824W) - TUSAT (833607N 1543003E) - UNTEK (791121N 1340410E) - NIGES (750546N 1265137E) - RANEN (735405c 1252913E) - NESPA (715403N 1233405E) - MOPUL (693331N 1232755E) - GANPA (664703N 1232204E) - ARLAG (651308N 1254435E) - SUBOS (635738N 1272559E) - TAGIL (631602N 1282035E) - Yakutsk VOR/DME (UTS) (620533N 1294705E) (двухсторонняя)	State ATM Corporation. 09.02.2010	a) Open a new cross polar route; b) Under review		RUS USA	Implemented as R494 on Oct 18, 2012
33	CPRS/42	GIMON – NIRUT (76N035E)	2012	Purpose: for flights from India to existing routes to GIMON continue in the North America		RUS NOR	Published as A840 on March 07, 2013
34	CPRS/43	GIMON – AGATA (78N035E)	2012	Purpose: for flights from India to existing routes to GIMON continue in the North America		RUS NOR	Published as A841 on March 07, 2013
35	CPRS/44	ANODI – KOMEL (7730N035E)	2012	Use as a new Crosspolar route for flying from North America to		RUS NOR	Published as A839

Item	Reference	Route description	Proposed by	Objectives/Comments	Benefits	FIR	Target Dates
1	2	3	4	5	6	7	8
				Southeast Asia			on March 07, 2013
36	CPRS/45	SIMLI-G494-B331-W205-WZ	2013	Reduce mileage		RUS	Will be published as G494, A803 on September 19, 2013
37	CPRS/46	NERPA (643256N 1430619E) –FA (Yekimchan) (530807N 1324953E) – MAGIT (474131N 1310900E) Unidirectional traffic from FA to MAGIT	2013	Extend the existing Crosspolar route		RUS	Will be published as B806 on September 19, 2013
38	CPRS/47	WZ (503808N 1280207E) – PARIS (512001N 1300004E) - FA (530807N 1324953E). Unidirectional traffic from WZ to FA	2013	Establish parallel routes		RUS	Will be published as A803 on September 19, 2013
39	CPRS/48	493236N 1281936E-AMERA- WZ (unidirectional traffic to WZ)	IATA	Establish parallel ATS routes (G494 is unidirectional to SIMLI)		RUS CHN	Under review and coordination. Negotiate with China, in different formats (IATA, ICAO, etc.)
40	CPRS/49	RITEK – 495025N 1182854E - HAILAR	IATA	Establish an additional entry/exit point	Reduce mileage	RUS CHN	Under review and coordination. Negotiate with China, in different formats (IATA, ICAO, etc.)
41	CPRS/50	SALET (7957N 16858W) – RODOK then alogn G495	State ATM Corporation October 2013	Establish an additional entry/exit point		RUS FAA	To be published as G819 in 13.11.14
42	CPRS/51	BARIP (7457N 16858W) – LUTEM – OLMIN – ZR (Зырянка) - ASKIB	State ATM Corporation October 2013	Establish an additional entry/exit point		RUS FAA	To be published as B722 in 13.11.14
43	CPRS/52	Establish additional NCRPs at G819, G493, G226, R351	United Airlines August 2014	Establish additional NCRPs to simplify transitions between the existing airways	Increase Route Efficiency	RUS	The following NCRPs were established: BAKUK, BUNIT, OKLOS NOTAM: A3748/14, A3750/14, A3745/14, A3743/14
44	CPRS/53	Establish a new ATS route: SOTIS PILAN- LURAM-	United Airlines August 2014	Establish a new ATS route.	Increase airspace efficiency, provide fuel savings and CO ₂ reduction	RUS	The route proposal accepted. The new A303 airway implemented in April 2015 as follows LURAM (664606N 0375031E) - TOKRO (660730N 0391350E) – SOTIS (654100N 0400750E) Flight level band:, <u>FL100**</u> <u>FL140</u> <u>FL160*</u> <u>FL200</u>

Item	Reference	Route description	Proposed by	Objectives/Comments	Benefits	FIR	Target Dates
1	2	3	4	5	6	7	8
							FL080 FL110 FL150 FL170 FL250* FL390 FL510* FL210 FL260 FL400
45	CPRS/54	820939N 1685824W – 802806N 1642448E– 755700N 1431800E – IDIMA	State ATM Corporation December 2014	Establish a new ATS route segment.	Increase airspace efficiency, provide fuel savings	RUS	The new route B802 will be opened effective from November 12, 2015 as follows: LETUN (820939N 1685824W) OLMAT(802806N 1642448E) LOMRI (760029N 1432814E) IDIMA (740045N 1360243E) <u>FL530</u> <u>FL270</u>
46	CPRS/55	755700N 1431800W –RUTIN	State ATM Corporation December 2014	Establish a new ATS route segment.	Increase airspace efficiency, provide fuel savings	RUS	The new route G813 will be opened effective from November 12, 2015 as follows: : LOMRI (760029N 1432814E) RUTIN (733414N 1403546E) BEKOP (721044N 1360641E) BANIK (714205N 1344553E) AKEBA (713047N 1341525E) RILAK (691609N 1290106E) DISES (650957N 1231911E) Vilyuysk NDB (CZ) (634438N 1214704E) <u>FL530</u> <u>FL270</u>
47	CPRS/56	762814N 1685824W - 754700N 1791349E – LUNOG	State ATM Corporation December 2014	Establish a new ATS route segment.	Increase airspace efficiency, provide fuel savings	RUS	The new route R827 will be opened effective from November 12, 2015 as follows: BEKAR (762814N 1685824W) OMELI (754700N 1791349E) LUNOG (720705N 1565953E) <u>FL530</u> <u>FL270</u>
48	CPRS/57	762814N 1685824W – 722712N 1662946E – OLMIN	State ATM Corporation December	Establish a new ATS route segment.	Increase airspace efficiency,	RUS	The new route R830 will be opened effective from November 12, 2015 as follows:

Item	Reference	Route description	Proposed by	Objectives/Comments	Benefits	FIR	Target Dates
1	2	3	4	5	6	7	8
			2014		provide fuel savings		BEKAR (762814N 1685824W) TUSET (743842N 1761440E) GOPAN (722659N 1662322E) IPTER (713000N 1631457E) RUDBA (703041N 1602609E) LULIR (692254N 1573900E) KEMED (690349N 1565606E) OLMIN (672801N 1534310E) <u>FL530</u> FL270

Section 2. Proposed Trans-East Route Segments (TVRS)

Item	Reference	Route description	Proposed by	Objectives/Comments	Benefits	FIR	Target Dates
1	2	3	4	5		6	7
1	TVRS/8	G907 - BANOT (5940.6N 14908.7E) - NILOT (5611.0N 14142.7E) -.6N 13726.1E –4809.5N 13131.6E –MAGIT (474131N 1310900E) – JMU (JIAMUSI) (unidirectional from 5340.6N 13726.1E to 474131N 1310900E)	State ATM Corporation. 10.07.2007	a) Open up a new Transeast route to join JMU (JIAMUSI); b) Approved and ready for implementation; c) There is no connection in China airspace from 4741.3N 13108.4E – JMU (JIAMUSI); d) ASBAT – BA (Balagannoye); e) After opening of the above route. G212 ARGUK - HAB (Khabarovsk VORDME 4832.7N 13512.6E) will be used only for eastbound flying.		RUS CHN	Published as R213 on Oct 20, 2011
2	TVRS/13	ASKIB (5924.1N 14303.1E) - 5340.6N 13726.1E (ASKIB (592407c 1430312B) - GIRUD (534038c 1372609B)	State ATM Corporation. 10.07.2007	a) Open up a new route; b) Approved and ready for implementation		RUS	Published as B722 on Oct 20, 2011
3	CHUKO TKA-1	LISKI (7024.3N 16858.3W) - PEVEK (UHMK) (6947.0N 17035.7E) - CHERSKY (UESS) (6844.6N 16120.2E) -Zyryanka (6543.8N 15046.2E) - INDIK (6316.0N 14312.0E) - Chagda (5845.0N 13039.0E) Flight Level Band 9600-11600 m (bidirectional use)	RACGAT/13	a) UESU – INDIK – Chagda segment is located to close to the existing FIR boundaries and is outside VHF and radar coverage. b) Developed and approved an alternative route G912		RUS USA	Implementation is deemed unreasonable
4	TVRS/14	BELEK (6817.1N 14247.1E) - RODOK (6633.7N 13710.1E) (bidirectional use)	Proposed by airlines August 1. 2009	a) Transition from G969 to G495; b) Approved and ready for implementation		RUS	Published as B969 (by NOTAM) on Jul 1, 2010
5	TVRS/21	ABAGO (5617.5N 14414.2E) - 5517.2N 14005.3E (ABAGO (561731c 1441418B) - GITAK (551707c 1400520B)	State ATM Corporation. апрель July 10. 2007	a) Open up a new route; Approved and ready for implementation		RUS	Published as G902 on Oct 20, 2011
6	TVRS/22	ARNAP (6440.0N 17025.0E) - ASMOK (6448.8N 16843.2E) – ILMUK (6456.1N 16714.7E) – LUVAK (6502.8N 16526.4E) – OSKON (6514.3N 16032.5E) – ABAPI	State ATM Corporation. 30.03.2010	a) Open up a new route; b) North America and Alaska traffic to Afganistan, Kyrgystan (Manas), Beijing, Hong Kong,		RUS	Published as B155 (by NOTAM A2204/10) on Jun 3, 2010

Item	Reference	Route description	Proposed by	Objectives/Comments	Benefits	FIR	Target Dates
1	2	3	4	5		6	7
		(6502.5N 15718.3E) – RUBIS (6433.3N 15159.3E) – ELBIN (6340.5N 14532.7E) – INDIK (6316.0N 14312.0E) – KURAK (6247.0N 13651.0E) – LUKON (6230.9N 13338.4E) – UEEE (6205.5N 12947.0E)		Mongolia and China; c) Approved and ready for implementation Assigned B155 designator			
7	TVRS/23	NUZAN – 5141.2N 16239.1E – RIMLI (5142.3N 15806.8E) – B932	State ATM Corporation. April 2010	a) Transition between R220 and B932; b) Initial review completed		RUS USA	Published as G801 on Nov 17, 2011
8	TVRS/24	5005.0N 15900.0E – 4947.2N 15400.0E – B932	State ATM Corporation. April 2010	a) Transition between R220 and B932; b) Initial review completed		RUS USA	Published as G804 on Nov 17, 2011
9	TVRS/25	NYMPH - 5310.5N 166310.E – RIMLI (5142.3N 15806.8E) – B932	State ATM Corporation. April 2010	a) Transition between R220 and B932; b) Initial review completed		RUS USA	Published as G816 LUMES - RIMLI
10	TVRS/26	NYMPH - 5325.0N 167126.E- B932 (5321.6N 16218.4E) -UHPP	United Airlines April 2010	a) Transition between G469 and B932 then to B915; b) Accepted for review		RUS USA	Published as G73 on Nov17, 2011
11	TVRS/27	OLCOT – NUZAN – 5141.0N 16237.6E – RIMLI – SENOR – G73 (B115)	United Airlines April 2010	a) Transition between R580 (A342) and B932 then to G73 (B115); b) Accepted for review		RUS USA	unacceptable at the moment
12	TVRS/28	OGDEN – 4855.5N 15636.2E – NETRI – LATAK – G103	United Airlines April. 2010	a) Transition between R580 (R451) and B932 then to G103; b) Accepted for review		RUS USA	unacceptable at the moment
13	TVRS/29	NETRI – 4304.2N 14640.4E - NODAN	United Airlines April 2010	a) Transition between B932 and B915; b) Requires opening of a new entry/exit fix with Japan c) Accepted for review		RUS JPN	unacceptable at the moment
14	TVRS/30	OSKON-UHMI (UHMI – PEMID)	Air Canada 14.02.2011	a) remove flight level restrictions 13100-16100		RUS	Published as A218 FL 270-530
15	TVRS/31	a) KURAK (6247.0N 13651.0E) – ODANA	IATA декабрь 2010	a) reduce mileage		RUS	unacceptable at the moment
		б) KURAK – KUNIK		b) provide transition from R819 to G494			Published KURAK – KUNIK as R819

Item	Reference	Route description	Proposed by	Objectives/Comments	Benefits	FIR	Target Dates
1	2	3	4	5		6	7
16	TVRS/32	Okhotsk - N5340.6 E13726.1	State ATM Corporation. 10.07.2007	open up a new route		RUS	Published as B722 on Oct 20, 2011
17	TVRS/33	ABAGO – GITAK (N.5517.2 E14005.3)	State ATM Corporation. 10.07.2007	open up a new route		RUS	Published as G902 on Oct 20, 2011
18	TVRS/34	BIRBO – ODEKA (N4809.5 E13131.6)	State ATM Corporation. 10.07.2007	open up a new route		RUS	Published as B723 on Oct 20, 2011
19	TVRS/35	ARNAP (N 644000 E 1702510) –ASBAT (N635331 E1644434)	Cathay Pacific 26.07.2011, RDGE/15 30.09.2011	extension R213		RUS	Published as R213 on May 31, 2012
20	TVRS/36	AMETO (N582137 E1532037)-NARIT (581534N 1525610E)- BAMUN (580808N 1522641E)-BENGA (575715N 1514437E)-BEBAT (573246N 1501419E)-GRUMA (N560501 E1453036)	Cathay Pacific 26.07.2011, RDGE/15 30.09.2011	extension B237		RUS	Published as B237 on May 31, 2012
21	TVRS/37	BUMAT (615007N 1603257E)-BUSUL (612501N 1555402E)-DERUD (604907N 1522350E)	Cathay Pacific 26.07.2011, RDGE/15 30.09.2011	extension A827		RUS	Published as A827 on May 31, 2012
22	TVRS/38	BUMAT (615007N 1603257E)-LUNEK (605645N 1552506E)- ODERI (603231N 1532656E)	Cathay Pacific 26.07.2011, RDGE/15 30.09.2011	route realignment		RUS	Published as A828 on May 31, 2012
23	TVRS/39	URABI (601201N 1544108E)-BANEB (601415N 1552423E)-SOPUR (601839N 1570605E)-RUNAB (602101N 1581731E)-BEBOR (602257N 1593711E)-DIREG (602413N 1610436E)-RAMKA (602426N 1613257E)-Tilichiki NDB (TK) (602154N 1660045E)-NELTA (605736N 1725315E)-RUSOR (611400N 1775600W)	Cathay Pacific 26.07.2011, RDGE/15 30.09.2011	a) extension G370 b) Leaving the NOPAC		RUS	Published as G370 on May 31, 2012

Item	Reference	Route description	Proposed by	Objectives/Comments	Benefits	FIR	Target Dates
1	2	3	4	5		6	7
24	TVRS/40	BALUB (564751N 1671435E)- MURTA (562209N 1634311E)- Ust-Kamchatsk NDB (UK) (561324N 1624114E)- OSMOR (551335N 1565706E)- TOSNO (550813N 1563047E)- BANIT (544949N 1550431E)- KORES (535524N 1500000E)- GIRAN (532549N 1474300E)	Cathay Pacific 26.07.2011, RDGE/15 30.09.2011	route realignment		RUS	Published as B804 on May 31, 2012
25	TVRS/41	IRKAN-KOKUN-BANIT	Cathay Pacific 26.07.2011, RDGE/15 30.09.2011	route realignment		RUS	Published as B327
26	TVRS/42	FA – WZ - SIMLI (Proposed alternative is FA – PARUS – SIMLI)	Pacific United Airlines	route realignment		RUS	unacceptable at the moment
27	TVRS/43	SIBIR – LURED – EKVIK (decommission B451 LURED – IGROD)	IATA	To improve north-south traffic flows between Khabarovsk FIR and Fukuoka FIR	Reduce mileage	RUS JPN	under review
28	TVRS/44	KUNAD - OTLER	RUS 09.08.13	NOPAC transition to Trans-East	Reduce mileage	RUS	To be published as G815 in 13.11.14
29	TVRS/45	LUMES - RIMLI	RUS 09.08.13	NOPAC transition to Trans-East	Reduce mileage	RUS	To be published as G816 in 13.11.14
30	TVRS/46	Ust-Kamchatsk NDB (UK) - MIVAN (552730N 1615931E) - KEGOR (544042N 1611855E) - SIPVA (530624N 1600201E) - Khalaktyrka (HY) (530001N 1584736E) - PETIN (531012N 1582713E) – to be used by coordination with ATC	RUS 09.08.13	To support general aviation flights from USA to China		RUS	After implementation of a new automated ATC system at PK ACC. Target date December 2015 – 1 квартал 2016.
31	TVRS/47	NETRI – 430312N 1463915E - NODAN	RUS 09.08.13	To be used by coordination with ATC to avoid volcanic ash		RUS	Approved in Russia, no approval from Japan.
32	TVRS/48	Troitskoye NDB (FI) - REPIK - ADITO – LANRI FL120-FL300 are available by coordination with ATC, FL310-FL530 are available without restrictions.	RUS 05.06.14	Remove flight level restrictions	Increase efficiency of B915 Route	RUS	Implemented by NOTAM A3155/14 on August 28, 2014

Item	Reference	Route description	Proposed by	Objectives/Comments	Benefits	FIR	Target Dates
1	2	3	4	5		6	7
33	TVRS/49	KORES – DIPNA – NK (Nikilskoe) – UK (Ust-Kamchatsk) – 5150N 15301E – 453933E 1505937E	JCAB Feb 2015	Avoid volcanic ash	Increase airspace efficiency	RUS JCAB	Accepted for implementation. A new entry/exit point at FIR boundary between PK and Fukuoka shall be agreed. Domestic routes in PK shall be assigned an international status. Target date - 2016
34	TVRS/50	IRKAN 552000N 1625631E - BANIT 544949N 1550431E	RUS 2015	Avoid volcanic ash	Increase airspace efficiency	RUS	The new route segment of B327 will be opened on November 12, 2015 as follows: IRKAN 552000N 1625631E KOKUN 551630N 1611642E GITRU 551259N 1600635E LUPIR 550053N 1570825E NELEB 545837N 1564046E BANIT 544949N1550431E
35	TVRS/51	PETIN- RIMLI	RUS 2015	Выполнение полетов в верхнем и нижнем воздушном пространстве	Increase airspace efficiency	RUS	The new route segment of B244 will be opened on November 12, 2015 as follows: RIMLI (514218N 1580655E) RINOT (522205N 1585954E) PETIN (531012N 1582713E) <u>FL530</u> <u>FL130</u>
36	TVRS/52	Open up new entry/exit points between FRENK and LISKI as follows 1. XXXX – OSKON; 2. XXXX – ASBAT; 3. XXXX – RAMKA 4. XXXX – TK	United Airlines May 2015	Establish new route segments	Increase airspace efficiency, provide fuel savings	RUS USA	The proposals reviewed and the following three new entry/exit points between FRENK and LISKA are suggested: 1. 692427N 1685824W - RUPIS; 2. 682642N 1685824W - LORKI; 3. 682642N 1685824W - BETAM; 4. 672752N 1685824W – NB (Uyelkal)

Abbreviations:

- Proposed cross polar Route Segments (CPRS);
- Proposed Trans-East Route Segments (TVRS);
- Trans-Asian Route Segments (TARS);
- Asian Route Segments (ARS);
- Trans-polar Route Segments (TPRS);
- Trans-Siberian Route Segments (TSRS);
- Other Route Segments (DRS)

Brief catalogue description:

Item 1. Shows an ordinal number of a route proposal.

Item 2. Shows reference number of a route proposal.

Item 3. Route description consists only of IDENTs for NAVAIDS and 5LNC without coordinates. (where several NAVAIDS have same IDENT include name of NAVAID).

b) when available. route designators to be included.

c) unidirectional use of the route to be indicated in text (i.e. Westbound. Eastbound. etc.).

d) several routes being studied within a single airspace planning package will be entered as one proposal.

Item 4. Shows Flight Information Regions (FIR) concerned.

Item 5. Shows objectives/comments.

Item 6. Proposed by.

Item 7. Target dates.

Route proposals that can not be implemented should be marked with grey

Implemented proposals should be marked by green

<i>FIR</i>	<i>CODE</i>
Afghanistan	AFG
Albania	ALB
Algeria	DZA
Armenia	ARM
Austria	AUT
Belarus	BLR
Belgium	BEL
Bosnia and Herzegovina	BIH
Bulgaria	BGR
China	CHN
Croatia	HRV
Cyprus	CYP
Czech Republic	CZE
Democratic People's Republic of Korea	PRK
Denmark	DNK
Egypt	EGY
Estonia	EST
Finland	FIN
France	FRA
Georgia	GEO
Germany	DEU
Greece	GRC
Hungary	HUN
Iceland	ISL
India	IND
Iran. Islamic Republic of	IRN
Iraq	IRQ
Ireland	IRL
Israel	ISR
Italy	ITA
Japan	JPN
Jordan	JOR
Kazakhstan	KAZ
Kuwait	KWT
Kyrgyzstan	KGZ
Latvia	LVA
Lebanon	LBN
Libyan Arab Jamahiriya	LBY
Lithuania	LTU
Luxembourg	LUX
Malta	MLT
Mongolia	MNG
Montenegro	MNE
Morocco	MAR
Netherlands	NLD
Norway	NOR
Pakistan	PAK
Poland	POL
Portugal	PRT
Republic of Azerbaijan	AZE
Republic of Moldova	MDA
Republic of Serbia	SRB
Romania	ROU
Russian Federation	RUS
Saudi Arabia	SAU
Slovak Republic	SVK
Slovenia	SVN

Spain	ESP
Sweden	SWE
Switzerland	CHE
Syrian Arab Republic	SYR
Tajikistan	TJK
The former Yugoslav Republic of Macedonia	MKD
Tunisia	TUN
Turkey	TUR
Turkmenistan	TKM
Ukraine	UKR
United Arab Emirates	ARE
United Kingdom	GBR
United States of America	USA
Uzbekistan	UZB

Легенда каталога маршрутов
Legend catalog routes

	Предложения, которые не могут быть реализованы в данный момент	
AMATI (780000N 1685824W) - GILOD (755416N 1720106E)	Реализованные предложения	
AMATI (780000N 1685824W) - GILOD (755416N 1720106E)	Предложения, реализуемые в ближайшее время	
AMATI (780000N 1685824W) - GILOD (755416N 1720106E)	Предложения, находящиеся на рассмотрении	
Implementation is deemed unreasonable	Реализация считается необоснованным	
Published as ...	Опубликовано как ...	
Implemented on ...	Реализован с ...	
segment is unavailable before ...	Сегмент недоступен до ...	
under review ...	на рассмотрении	
expected date of commissioning	Планируемый срок ввода ...	
unacceptable at the moment	Неприемлем в данный момент	
Consider after commissioning Ust- Khairyuzovo SSR	Рассмотреть после ввода в строй в ВРЦ Усть-Хайрюзово ВРЛ	

CPWG Planning Chart

Near Term Goals (2016-2018)

	PLANNING GOAL	ACTION WITH	STATUS OF ACTION AND TARGET DATE	
1	REDUCE AND HARMONIZE SEPARATION STANDARDS IN INTERNATIONAL AIRSPACE			
	<ul style="list-style-type: none"> Implement RVSM FL290-410 			Completed
	Harmonize RVSM Transition Procedures			
	<ul style="list-style-type: none"> Anchorage Arctic FIR 			Completed
	<ul style="list-style-type: none"> Anchorage Oceanic FIR 			Completed
	<ul style="list-style-type: none"> Russian FIRs 			Completed
	<ul style="list-style-type: none"> Fukuoka FIR 			Completed
	Implement 10 Minute Longitudinal Separation for ATS Route B932			Completed
	Implement reduced longitudinal separation (aircraft equipage requirements)			
	<ul style="list-style-type: none"> Edmonton FIR (5 min or 50NM) 	NAV CANADA	TBD	
	<ul style="list-style-type: none"> Reykjavik FIR (10 min) 	Isavia	2016	
	<ul style="list-style-type: none"> Reykjavik FIR (5 min) 	Isavia	2016	
	<ul style="list-style-type: none"> Anchorage Arctic FIR 	FAA	TBD	
	<ul style="list-style-type: none"> Murmansk 	State ATM	TBD	

	PLANNING GOAL	ACTION WITH	STATUS OF ACTION AND TARGET DATE	
	• Magadan	State ATM	TBD	New Horizontal separation minima for RNP-4, RNP-10 aircraft based on periodic ADS-C Reports
	• Edmonton	NavCanada	TBD	
	• Anchorage Oceanic FIR (30 NM)			Completed
	Implement Further Reduced longitudinal separation (aircraft equipage requirements)			
	• Anchorage Arctic FIR (30 NM)	FAA	TBD	
	• Murmansk	State ATM	TBD	
	• Magadan	State ATM	TBD	
	• Edmonton	NavCanada	TBD	
	Implement further reductions to lateral separation (aircraft equipage requirements)			
	• Edmonton FIR RNP-4	NavCanada	TBD	
	• ADS-C Conformance Reporting	NavCanada	Summer 2016	
	• Lat/Long of RNP-4	NavCanada	TBD	
	• Reykjavik FIR (25 NM)	Isavia	2016	
2	IMPROVE/INCREASE EFFICIENCIES FOR CROSS POLAR AND RUSSIAN FAR EAST AIR TRAFFIC			

	PLANNING GOAL	ACTION WITH	STATUS OF ACTION AND TARGET DATE	
	Harmonize Procedures for ATS Route B932			Completed
	Create seamless and homogeneous airspace for the traffic from North America to Asia with the expansion of User Preferred Routes (Pacific Project)	ANSPs/Operators	TBD	
	Improve Efficiency on Cross Polar Routes			
	<ul style="list-style-type: none"> • Add entry/exit fixes on the Anchorage/Russian FIR boundary in order to provide additional parallel routes 	FAA/State ATM	Nov 12 LETUN BEKAR Total No. of Entry/Exit Fixes: 18 (incl. routes with boundary of Iceland and Norway)	
	<ul style="list-style-type: none"> • Eliminate restrictions to file entry fixes on the Anchorage/Edmonton FIR boundary 	FAA/NAV CANADA	TBD	
	<ul style="list-style-type: none"> • Add Entry/Exit between Murmansk and Reykjavik 	State ATM	TBD	
	<ul style="list-style-type: none"> • Add Entry/Exit Fixes on Reykjavik/Russian FIR Boundary 			Completed
	<ul style="list-style-type: none"> • Open new Kamchatka Routes from PILUN and LISKI 			Completed
	<ul style="list-style-type: none"> • Open New Routes South of ABERI 			Completed

	PLANNING GOAL	ACTION WITH	STATUS OF ACTION AND TARGET DATE	
	Improve Efficiency on Russian Trans-East Routes			
	<ul style="list-style-type: none"> Eliminate 10 min track loading for RTE over Anchorage/Russian Boundary 			Completed
	Improve Air Traffic Flow Management			
	<ul style="list-style-type: none"> Establish CTA in Anchorage Arctic FIR 	FAA	July 2015	Completed
	<ul style="list-style-type: none"> Reduce track loading to 10 minutes for Cross Polar Fixes 			Completed
	<ul style="list-style-type: none"> Remove requirement for flight to file NOR OTS Routes over Canada 			Completed
	Improve ATFM Collaboration			
	<ul style="list-style-type: none"> FAA/NavCanada 			Completed
	<ul style="list-style-type: none"> FAA/State ATM 			Completed
	<ul style="list-style-type: none"> NavCanada/State ATM 			Completed
	Make Tactical Re-Routes Available for Daily Operations			Completed
	Implement use of Radar Procedures between Magadan ACC and Anchorage ARTCC without Radar Data Sharing			
	<ul style="list-style-type: none"> Anchorage Arctic FIR 	FAA	2018	
	<ul style="list-style-type: none"> Magadan FIR 	FATA	2018	

	PLANNING GOAL	ACTION WITH	STATUS OF ACTION AND TARGET DATE	
3.	IMPROVE COMMUNICATIONS IN ARCTIC/POLAR REGION			
	Improve communications procedures			
	<ul style="list-style-type: none"> Change procedures to retain connection with Iridium and HF DL north of 82N 	Isavia		Completed
	<ul style="list-style-type: none"> Implement ADS-C periodic contract and lateral and vertical conformance monitoring 			Completed
	Implement AIDC/OLDI for Data Exchange			
	<ul style="list-style-type: none"> Russian and Anchorage FIRs 	FAA State ATM	2018	
	<ul style="list-style-type: none"> Khabarovsk ACC and Sapporo ACC 	State ATM/JCAB	2018	
	<ul style="list-style-type: none"> Murmansk and Reykjavik FIRs (AIDC) 	State ATM/Isavia	2017	
	<ul style="list-style-type: none"> Bodo and Murmansk FIRs 	Avinor/State ATM	2017	
	<ul style="list-style-type: none"> Anchorage Arctic, Oceanic and Continental FIRs (AIDC) 			Completed
	<ul style="list-style-type: none"> Edmonton FIR (AIDC) 			Completed
	<ul style="list-style-type: none"> Reykjavik and Edmonton FIRs 			Completed
	Implement CPDLC for All Polar Routes			
	<ul style="list-style-type: none"> Murmansk FIR 	State ATM	2018	

	PLANNING GOAL	ACTION WITH	STATUS OF ACTION AND TARGET DATE	
	• Anchorage Arctic FIR			Completed
	• Bodo			Completed
	• Reykjavik FIR			Completed
	• Magadan FIR (North Sector)			Completed
	Implement ADS-C			
	• Anchorage Arctic FIR	FAA	Mid 2016	
	• Edmonton FIR	NAV CANADA	Summer 2016	
	• Bodo			Completed
	• Magadan FIR			Completed
	Implement ADS-C for All Polar Routes			
	• Edmonton FIR (waypoints only)			Completed
	• Reykjavik CTA			Completed
	• Magadan FIR			Completed
	Monitor Communications and Data Link Performance			
	• Provide information on any issues relating to communications/data link performance at CPWG meetings	All ANSPs and Operators	Ongoing	
	Improve Awareness of Space Weather Issues in Arctic/Polar Region			

	PLANNING GOAL	ACTION WITH	STATUS OF ACTION AND TARGET DATE	
	<ul style="list-style-type: none"> Develop Space Weather User Needs 	All		Completed
5.	IMPROVE SAFETY			
	DEVELOP ARCTIC ATM OPERATIONAL CONTINGENCY PLAN	All		Completed
	Develop CPWG Volcanic Ash Contingency Guidance			
	<ul style="list-style-type: none"> Consider amending LOAs between adjacent ACCs to introduce provisions on contingency reroutes 	All	TBD	
	<ul style="list-style-type: none"> Formalize teleconference format and process taking into consideration collaborative decision making (CDM) 	FAA, State ATM, JCAB	TBD	
	<ul style="list-style-type: none"> Streamline the process for issuing NOTAMs on volcanic ash 	FAA, State ATM	2015	
	Implement single AFTN address for each ANSP¹			
	<ul style="list-style-type: none"> State ATM 	State ATM	2020	
	<ul style="list-style-type: none"> CAAC ATMB 	CAAC ATMB	Unknown	
	<ul style="list-style-type: none"> CAA Mongolia 	CAA Mongolia	Unknown	
	<ul style="list-style-type: none"> Kazakstan 		TBD	
	<ul style="list-style-type: none"> NavCanada 		2018	

¹ FAA and JCAB do not plan to implement a single AFTN address

	PLANNING GOAL	ACTION WITH	STATUS OF ACTION AND TARGET DATE	
	<ul style="list-style-type: none">• Iceland			Completed
	<ul style="list-style-type: none">• Norway			Completed