



International Civil Aviation Organization

**The Special ATS Coordination Meeting Cross Polar and Russian Trans-East
ATS Routes (SCM POLAR & RTE)**

Bangkok, Thailand, 15 and 16 November 2005

**Agenda Item 3: Cross-polar/Russian Far East ATS route review – Asia/North America
traffic flows**

**CURRENT ISSUES PERTAINING TO IMPROVEMENTS TO
CROSS POLAR/TRANS-EAST ATS ROUTE NETWORK
UPDATE ON OPTIMIZATION OF TRANS-SIBERIAN ROUTES**

(Presented by Russian Federation)

SUMMARY

This working paper provides an update on the current issues pertaining to improvements to Cross polar/Trans-East ATS route network and optimization of Trans-Siberian routes.

The Russian Air Traffic Management (ATM) system is a branch of the global air navigation system in the European region. It covers the territory of nearly 25 million square kilometers both in the sovereign airspace and over the High Seas areas where it has been assigned the responsibility for air traffic services by ICAO. (*Slide 1*)

The system consists of some 113 centers which provide air traffic services for 986 domestic and foreign aircraft operators.

The Russian ATM supports operations on the following 6 major ATS route systems:

- Asian;
- Trans-Asian;
- Trans-Siberian;
- Transpolar;
- Crosspolar;
- Trans-East.

(*Slide 2*)

The overall number of air routes is 810, totaling 522322 kilometers, including:

- 373 international airways (301022 kilometers);
- 307 domestic routes (176534 kilometers);
- 130 holiday routes (44776 kilometers)

As can be seen on *Slide 3*, the unique geographical position of the Russian Federation's territory makes its airspace very attractive for the users.

The Russian airspace is used by the following major air traffic flows: Asian – Southern Europe via Georgia and Azerbaijan to Iran/Afghanistan; Trans-Asian – Central Europe via Kazakhstan to Pakistan/ India and via Mongolia and China to Southeast Asia; Trans-Siberian – Northern Europe to Japan.

The traffic on Crosspolar routes has recently seen a tremendous growth.

This route system consists of 4 main ATS routes such as **Polar 1** for flights between central part of North America and India/Pakistan, **Polar 2** for flights between central and eastern parts of North America and Malaysia/Singapore/Thailand/Indonesia, **Polar 3** for flights between central and eastern parts of North America and China/Hong Kong/Taiwan/Philippines, **Polar 4** for flights between central/eastern parts of North America and China/Hong Kong/Taiwan/South Korea and a large number of link-routes.

The opening of Crosspolar routes for regular operations was enabled by a significant number of demonstration flights. The maiden demo flight across the North Pole from Krasnoyarsk to Toronto (Canada) was made on July 3, 1998 by the Russian airline Transaero. United, Northwest Airlines and Cathay Pacific Airways greatly contributed to the demonstration program by accomplishing the backbone of Crosspolar testing. All in all between 1998 and 2000, these airlines made a total of 479 demo flights.

The demonstration program allowed the airlines testing all four Crosspolar tracks for further use in their daily flight planning. It was discovered that the routing closest to Great Circle was not always a minimum time track. The flight time on each route highly depended on the prevailing winds and did not coincide for outbound and inbound flights. (*Slide 4*)

As could be seen on the above slide, the distance saving compared to non-Polar routes could be as much as one thousand miles (1034), while the time saving was more than two hours (2 hours 15 minutes).

In general the traffic growth was triggered by the on-going expansion of foreign airlines' operations to the international markets. This by large was attributed to the rapidly developing economies in the nations of South-East Asia as well as India and China, which allowed a quick market recovery after September 11 events and SARS.

The Crosspolar routes are presently used by 7 following airlines on the regular basis: United Airlines (UAL), Air Canada (ACA), Continental Airlines (COA), Cathay Pacific Airways (CPA), Singapore Airlines (SIA), Air China (CCA) and Thai Airways (THA). There are also some episodic ferry flights and charter operations by other airlines and business aviation operators.

According to ICAO 2005 – 2006 forecasts, the annual growth of over 6 % will be maintained in these regions.

A few other US and Chinese airlines such as UPS, FDX, Delta, China Eastern are expected to start using the Crosspolar routes in the future after the completion of intergovernmental talks between US and China in 2006. Besides there is a strong interest to Crosspolar operations from the airlines based at the Indian subcontinent (India and Pakistan) such as Air India and PIA. The above airlines have either already acquired the new long-range version of Boeing 777 (B777-200LR) or plan to do it in 2006. By the way, last July the Boeing Company made a ferry flight on Boeing 777-200LR from Mumbai (Bombay) to San-Francisco using Polar 2 route. The other interested airlines are Emirates, China Airlines, Asiana, Korean Air and EVA air.

Based on the above considerations, State ATM Corporation made some improvements to the above routes by establishing a few link-routes during the reported period (Slide 3). These link-routes allowed transitions between the routes to make use of optimal wind patterns.

New route B934: UOHH (Khatanga) – USATO (7612.0 N 09903.0 E) – BINTA (7744.7N 09559.0 E) – UODS (Ostrov Sredny) – ABERI

New route R494: UEEE (Yakutsk) – LM (Sangar) (6357.6 N 12725.9 E) – UEVV (Zhigansk)

Realignment of G491: UR (Chagda) – ARKOD (5519.5 N 12720.8 E) – LAVIR (5448.3 N 12718.2 E) – ZABAN – SOVIK – NINON – BANIR – BLG (Blagoveshchensk) – SIMLI

At request of foreign airlines, Irkutsk (UIII) ACC revised the operational window of B480 LETBI – Razdolye BD route to allow westbound flights via LETBI to Polar-2. Previously this route segment was available on request between 1400 and 2359Z, while in the remaining hours it was closed. Nowadays this segment was opened without any restrictions from 1400 to 2359Z and on request from 0000 to 1359Z.

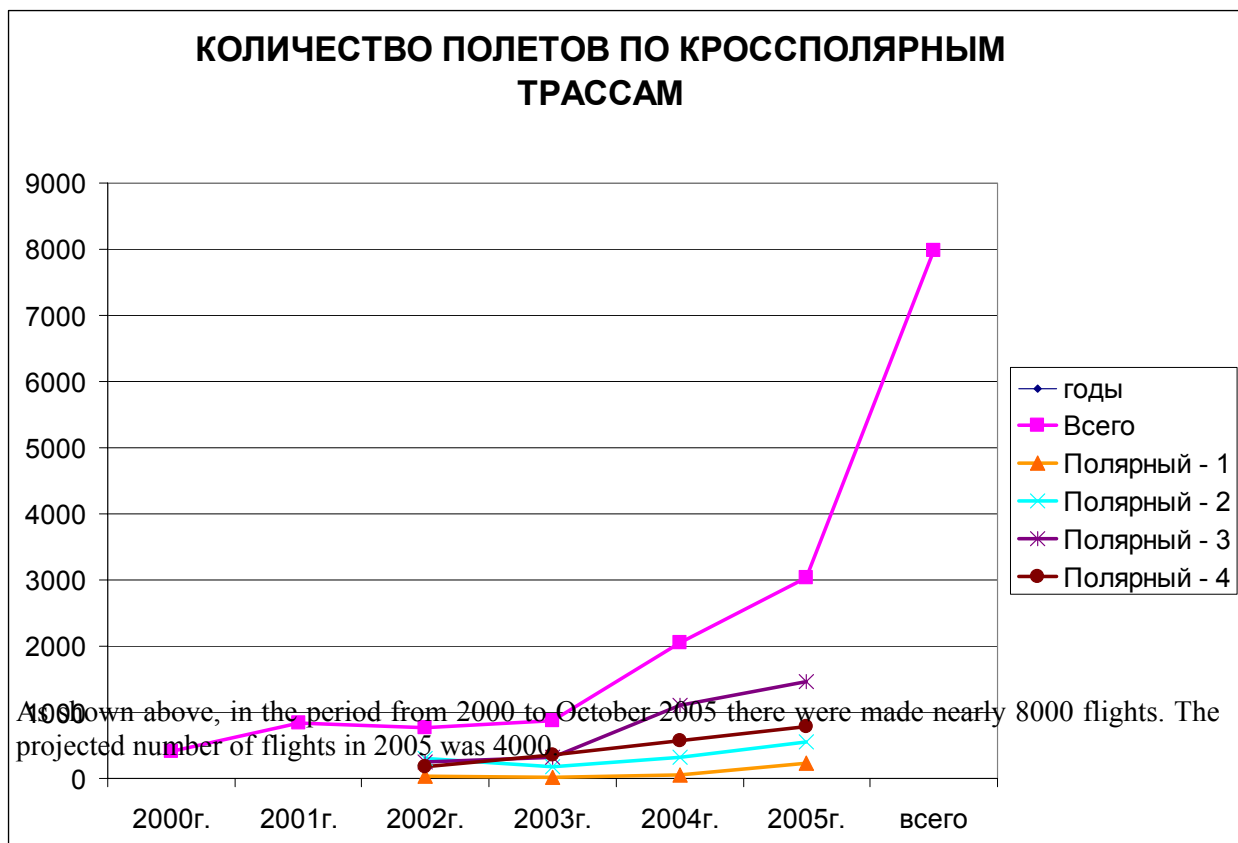
New way point DIBOR (5136.5 N 11735.7 E) at crossing of G492 and G496 routes. This allowed transition from G492 to G496 to detour GABAL – DEDUN segment of G491 in case of NOTAM closure.

New entry/exit point VAMOL (5022.5 N 10452. 5 E) at Russia/Mongolia border between LETBI and SERNA.

New route R478 BD (Razdolye) – VAMOL (5022.5 N 10452. 5 E)

The established link-routes generated significant cost savings for the airlines concerned by reducing the mileage, flight time, and fuel burn. The traffic density increased as well.

The traffic counts for Crosspolar routes in the period from 2000 to 2005 can be viewed on *Slide 5*.



The traffic statistics shown on Slide 5 illustrate traffic growth over the last 5 years, namely on Polar 3 and 4. Nevertheless, it's worthwhile noting that the existing traffic level was substantially lower than the forecast made by the airlines before the implementation of Crosspolar routes.

Even in the most pessimistic scenario (50 %), there should have been operated over 30 000 flights on all four Crosspolar routes from 2000 to 2005, while only 8000 flights were actually made.

It is eventually impossible to overlook the impact of both objective and subjective factors on the projected and actually operated number of flights, but there is definitely a need for a more balanced approach towards prospects for future operations on these routes.

The State ATM Corporation is aware that a few airlines have already added and will be adding new city-pair services and increase the number of flights between the existing city-pairs, which will undoubtedly have a positive effect on our economic indicators.

At this point it's worthwhile mentioning the proactive role of United Airlines both in operation of flights (since 1999 UAL has made a total of more than 3000 crosspolar flights, averaging between 90 and 100 flights monthly) and in the mutual cooperation. United Airlines makes a lot of suggestions on the improvement of flight operation through the Russian airspace. This is seen as a very positive sign.

United Airlines currently operates the following flights on Crosspolar routes: Chicago-Hong Kong, Chicago-Beijing, Chicago- Shanghai, Chicago-Kansai, Chicago-Tokyo and New-York – Tokyo. United has recently added second Chicago-Hong Kong flight totaling 10 weekly flights.

Adjacent to Crosspolar Routes are Trans-East routes. These routes have also seen a high amount of traffic. In 2004 alone the traffic volumes increased by 41.5 % due to the expansion of services between North America and Southeast Asia.

In the reported period there were opened the following new route segments:

new waypoint LALET (5005 N 13714 E) at crossing of A204 and G212;

new route B936: RELPI (4935.4 N 13626.2 E) – ABORI (4944.5 N 13640.6 E) – LALET;

B223 was extended from BA (Balagannoye) to AKSUN;

B233 was realigned from ODORA to DE (Yedinka);

new route B933 UESO(Chukordakh) to UHSH (Okha) (joins Polar-4 with B233)

There were opened a few more routes that due to certain reasons these were made available for Russian-speaking flight crews only. However the work is presently in progress to partially remove these restrictions:

new route B913 TERBA – SONID – NASAN - LOKIS

new route B915 UB (Ust Bolsheretsk) – QI (Troitskoe)

new route B916 INOKA – VALAM - ZONAL

(Slide 6)

Based on the foregoing, there is a need to take specific actions to improve the quality of air traffic services and attract a larger number of airlines to use the Russian airspace. The State ATM Corporation pays due attention to the airlines requests to improve the route network and airspace utilization.

The following actions have been already accomplished (***Slide 7***):

- the two oceanic sectors have been established at Murmansk and Magadan ACCs to improve air traffic management over the Arctic Ocean;
- effective from November 15, 2005 Tiksi ACC (UEST) will begin providing air traffic services outside the published operational hours of Chukurdakh ACC (UESO). In the meantime, North-East sector of Yakutsk ACC (UEEE) will start controlling traffic in Batagai (UEBB) and Tyoply Klyuch (UEMH) FIRs. This will allow opening of Polar 3 and Polar 4 for H24 operations (7 days a week). Note: H24 operations on Polar 3 will be possible in detour of Zhigansk ACC (UEVV).
NOTAMs A5603/05, A5605/05, A5607/05 refer.

At the next phase it is planned to establish satellite communications links under Yakutsk ACC consolidation program. This will enable H24 coverage at the two remaining FIRs Zhigansk (UEVV) and Zyryanka (UESU) affecting crosspolar flights in Yakutia. The State ATM Corporation is also elaborating technical solutions to expand ATC coverage in other FIRs in Eastern Yakutia and Chukotka to enable H24 operations on Trans-East and Chukotka routes (Mys Shmidta (UMHI) ACC, etc.)

Slide 8

The State ATM Corporation continues establishing new airways and new link-routes to allow flexible use of Crosspolar routings. At present time we are evaluating the airline proposals for establishing new transition routes from Polar 4 (G494) ORVIT to Polar 3 (G491) TIGLA, from Polar 3 (G491) RAMEL to TURDI Polar 4 (G494) and from Polar 3 (G491) to BESON/ENODI (B480). These proposals will be shortly sent to the regions for further coordination and action.

Slide 9

Besides, in the view of the airline requests to have a shorter routing from North America to India and Pakistan in addition to Polar-1, the following shortcuts on AKATI – LANOR (entry point to Kazakhstan) routing are contemplated: KUMEN - UUYU (Syktyvkar) (W95 domestic route will be assigned an international status) and KUMEN – SOTIS.

Slide 10

A proposed amendment to establish additional route segments to allow a detour of SULOK-IDRAN portion of G491 in the event of NOTAM closures is going through the necessary coordination.

Slide 11

Additional non-compulsory reporting points have been established on G491 and G494 by NOTAM A5453/05 (effective date - November 1, 2005). The work is in progress to remove the existing restrictions for foreign airlines on B915 and B916 routes, which will become available for flying from UB (Ust-Bolsheretsk) – ZONAL – INOKA – B233 - Yedinka.

Slide 8

The work is underway to implement Chukotka routes from RACGAT/13 catalogue. At this point, a new entry/exit point PILUN (N72 W 16858.4) for Chukotka-2 and Chukotka-3 was agreed and published in the airways list (internal document). Similarly, the first segment of Chukotka 2 from PILUN to Pevek (UHMP), designated B970 was agreed and published in the airways list. The remaining segments are still in workings.

Chukotka 1 LISKI to Pevek (UHMP) to Zyrynka (UESU) to Oymyakon to Chagda
 Chukotka 2 PILUN (N72 W 16858.4) to Pevek (UHMP) to Omolon (UHMH) to Takhtayamsk
 Chukotka 3 PILUN (N72 W 16858.4) to Petin (N7033.2 W 15555) - VIKBI

- by coordination with adjacent States such as China and Japan, we intend to increase the number of entry/exit points;

Nevertheless, it would be worthwhile to highlight certain problems that State ATM Corporation encounters when optimizing the airspace structure, especially through coordination with Civil Aviation Administrations (CAAs) of the neighboring States.

Slide 12

Thus, based on the MoU between CAAs of Russia, Japan and US, subsequently renewed for the period from March 17, 2004 until September 29, 2005, there was established a demonstration route Kamchatka-4 (B932). However in the reported period, only one demo flight was operated on December 19, 2004 by United Airlines. Unfortunately it was impossible to assess the quality of air traffic services and provision of flight safety on this route on the basis of a single demo operation. It appears that the foreign users are not keen at all on using this route. As of today, the MoU had already expired and since Japan was keeping silent about its further renewal, the State ATM Corporation was forced to close this route until January 1, 2006. The State ATM Corporation would like to know if there are other airlines interested in operating demo flights on this route (except Cathay Pacific Airways) and whether Japan is keen on renewing the MoU.

Slide 13

A brief update on the progress done on the improvement of Trans-Siberian route network this year. On July 6, 2005 there were established 75 new international airway segments totaling 11434 kilometers, including 11 segments on Trans-Siberian routes:

- UEMO (6023.3N 12028.3E) – LODKI (6200.5N 11920.1E) – UENN (6318.0N 11820.0E);
- Tobolsk (5808.5N 06816.6E) – UNKIS (5742.0N 07110.0E) – ROBLA (5633.2N 07723.8E) – Severnoye (5620.1N 07821.6E) – Novotryshkino (5517.0N 08224.0E);
- Achinsk (5616.3N 09036.7E) – BALAV (5559.0N 09114.0E) – KESUM (5415.7N 09615.5E) – ABEGI (5142.1N 10214.8E) – VAMOL (5022.5N 10452.5E);
- Maksimkin Yar (5838.0T 08644.0E) – SOTIM (6010.7N 08023.0E) – UNSS Strezhevoy (6042.6N 07739.6E) – BERIP 6046.2N 07721.8E) – Nizhnevarovsk (6056.6T 07628.1E)

In the framework of Trans-Siberian route optimization, the State ATM Corporation has done a lot of work and is prepared to implement new route segments. However in order to complete this activity we need to reach a common understanding with Civil Aviation Administration of the People's Republic of China.

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