



**SUMMARY OF DISCUSSIONS OF
THE TRANS-REGIONAL AIRSPACE
AND SUPPORTING ATM SYSTEMS STEERING GROUP
FOURTH MEETING**

(Bangkok, Thailand, 29-31 October 2014)

1. Introduction

1.1 The fourth meeting of the Trans-Regional Airspace and Supporting ATM Systems Steering Group (TRASAS/4) was held in the ICAO Asia and Pacific (APAC) Office, Bangkok, Thailand, from 29 to 31 October 2014.

1.2 Mr Arun Mishra, Regional Director, ICAO Asia and Pacific (APAC) Office, Mr Luis Fonseca de Almeida, Regional Director, ICAO European and North Atlantic (EUR/NAT) Office and Ms Loretta Martin, Regional Director, ICAO North American, Central American and Caribbean (NACC) Office, co-chaired the meeting. The meeting was also attended by Mr Mohamed Khonji, Regional Director, ICAO Middle East (MID) Office. Mr George Firican, Deputy Regional Director, EUR/NAT Office, served as Secretary. He was assisted by Mr Yoshiki Imawaka, Deputy Regional Director, Mr Len Wicks, and Mr Peter Dunda from the APAC Office.

1.3 The meeting was conducted in English.

1.4 18 participants attended the meeting from 2 States and 3 international organizations. Apologies were received from Iceland, Norway, the Russian Federation and the Chairmen of the European Air Navigation Planning Group (EANPG) and the North Atlantic Systems Planning Group (NAT SPG).

1.5 A list of participants is at **Appendix A**.

2. Adoption of the Agenda

2.1 The following Agenda was adopted:

Agenda Item 1: Report on significant international aviation developments

The Group will exchange information and points of view on significant international aviation developments.

Agenda Item 2: Work currently underway to enhance the ATS route network

The Group will exchange information and provide guidance on work on-going, *inter alia*, within States, the regional route planning fora, and the Cross Polar Trans East Air Traffic Management Work Group (CPWG).

Agenda Item 3: Integration and Harmonization of NextGen, SESAR, and other regional and national modernization plans, including interface issues and the relationship with the new GANP and ASBU

The Group will exchange information and provide guidance to ensure integration and harmonization of NextGen (Next Generation) and SESAR (the Single European Sky

ATM Research Programme), and other regional and national modernization plans, including interface issues and the relationship with the new Global Air Navigation Plan (GANP) and Aviation Systems Block Upgrades (ASBU).

Agenda Item 4: Update on Implementation of Aviation Systems Block Upgrades (ASBU)

The Group will exchange information and provide guidance on work on-going to ensure inter-regional coordination between adjacent Regions to ensure a seamless implementation of Aviation Systems Block Upgrades (ASBU).

Agenda Item 5: Update on Extreme Weather Activities

The Group will exchange information and provide guidance on work on-going to ensure inter-regional coordination between adjacent Regions with regards to activities related to extreme weather conditions (e.g. space weather, volcanic ash).

Agenda Item 6: Short term, medium term and long term goals of TRASAS

The Group will review status reports on actions being taken on agreed common tasks and decide on updates to the TRASAS Action List as well as review its Terms of Reference (ToRs) in light of new developments.

Agenda Item 7: Arrangements for future TRASAS activities

Agenda Item 8: Any other business

3. Report on significant international aviation developments

Afghanistan ANS Capability and Contingency Planning

3.1 The TRASAS was presented with information regarding the Afghanistan Air Navigation Services (ANS) capability and the possible implementation of an ATM Contingency Plan. The TRASAS noted that the current airspace contract funded by North Atlantic Treaty Organization (NATO)-International Security Assistance Force (ISAF) and the United States Air Force Central Command (AFCENT) would expire on 15 December 2014. Up until the start of the TRASAS/4 meeting the Government of the Islamic Republic of Afghanistan (GIROA) failed to ensure a replacement to the existing arrangements.

3.2 In summary, it was noted that the current options for the short term included:

- a) ISAF extending the contract of the existing ANS Provider (ANSP);
- b) Afghanistan funding the extension of the current contract with the existing ANSP;
- c) Afghanistan engaging a new ANSP; and
- d) Afghanistan delegating ANS responsibilities to another State such as India, which could provide the ANS remotely.

3.3 If the existing contract for the provision of ANS at Kabul Area Control Centre (KACC) and Kabul Approach Control (KAC) would not be renewed and if the Afghan authorities were unable to resource or fully fund a new contract by, all airspace within the Kabul FIR, excluding Control Areas/Control Zones (CTA/CTR) the surrounding military controlled airfields would become Class G (uncontrolled) airspace.

3.4 The TRASAS noted that activities were taking place to develop potential contingency schemes to minimise the impact of the unavailability of ANS in Afghanistan, to the maximum extent possible. In this respect it was noted that a First Meeting of the Ad Hoc Afghanistan Contingency Group (AHACG/1) was held at the end of the APANPIRG/25 meeting in Kuala Lumpur from 11-12 September 2014 that would be followed by the AHACG/2 meeting (17-19 November, Istanbul) and by a High Level

meeting on the Afghanistan Contingency Planning (28 November 2014, Hong-Kong), looking for a political support for any contingency measures agreed at the AHACG/2 meeting.

3.5 The TRASAS noted that the contingency planning for Afghanistan was essential and a high priority, requiring effective coordination and planning between ICAO Regional Offices, ICAO HQ, and the affected stakeholders. Any failure to establish a comprehensive contingency plan would have a very significant effect on both efficiency and safety, and could severely affect air links between Europe and Asia. Therefore, the TRASAS suggested that a moratorium on ad hoc contingency route changes and procedures be established until 31 December 2014 within the affected airspace (in particular the Tehran FIR) and agreed to the following:

TRASAS Conclusion 4/1 – Afghanistan Contingency Planning

That:

- a) ICAO continues to provide maximum resources to support the AHACG meetings and the concomitant high level liaison required to support the development of an appropriate Afghanistan contingency scheme; and
- b) States are urged to support the contingency planning effort.

3.6 The TRASAS was also informed about the outcome of the Special Coordination Meeting on the Implementation of ATM Contingency Arrangements in the MID Region (SCM-IACA) that was held at the ICAO MID Regional Office, Cairo, Egypt, 24-25 September 2014. The SCM-IACA meeting emphasized that the successful implementation of contingency arrangements/operations would require coordination between all concerned stakeholders. In this regard, coordination between ICAO and IATA involving all adjacent ICAO Regional Offices (Bangkok, Cairo and Paris) was considered essential to ensure the implementation of harmonized contingency operations across Asia, Middle East and Europe.

4. Work currently underway to enhance the ATS route network

4.1 Under this agenda item the TRASAS noted the outcome from the Cross Polar Tans-East Air Traffic Management Provider's Working Group (CPWG), the Pacific Project Team (PPT), the Second Europe-Asia Trans-regional Special Coordination (EAT/SCM/2) Meeting and the operational constraints/route flexibility issues and the effect on long range operations between North America and China presented by IATA.

4.2 The TRASAS was informed about the work performed by the Pacific Project Team since TRASAS/3, the only forum bringing together all relevant parties (the United States, Canada, Japan and the Russian Federation) to consider major traffic flow in end-to-end terms. In order to ensure faster progress and a perceived lack of tangible outcomes in terms of realizing the stated aims of the project, the TRASAS agreed to the following:

TRASAS Conclusion 4/2 – Support for the Pacific Project

That TRASAS:

- a) reaffirms support for the the Pacific Project as agreed in 2010 at TRASAS/3;and
- b) urges the United States, Canada, Japan and the Russian Federation to work cooperatively with airspace users to improve airspace efficiency between North America and Asia.

4.3 With respect to the outcome of the EAT/SCM/2 meeting the TRASAS shared the concerns regarding the urgent need to redistribute the traffic between the Russian Federation and China via Mongolia (at least 30% of the traffic between the Russian Federation and China via Mongolia was operated via one single point: NIXAL). The TRASAS agreed that an urgent redistribution of traffic was needed in order to

cope with the increased traffic and heavy sector/traffic load at peak hours (e.g. the Krasnoyarsk ACC was often overloaded). The TRASAS noted that an official letter to facilitate opening the new entry/exit point west of NIXAL had been sent to the Director General of the Civil Aviation Administration of China (CAAC) in January, 2014. At the time of TRASAS/4 meeting a reply had not yet been received, and it was noted that the CAAC had unfortunately not attended the EAT/SCM/2 meeting, so this specific proposal was not yet addressed.

4.4 The TRASAS also noted that a proposal from Kyrgyzstan for an ATS route alignment which was already part of the Memorandum of Understanding (MoU) between Kyrgyzstan and China since May 2013 had not progressed. The TRASAS was informed about the Khabarovsk/Vladivostok airspace reorganisation project in the Russian Federation, which would extend through airspace of the Democratic People's Republic of Korea (DPRK). However, it was noted that linking this ATS route reorganisation southward would depend on the Republic of Korea (ROK) and its assessment of whether the scheme was viable or not.

4.5 The TRASAS expressed its appreciation for all the work that had been accomplished so far by the CPWG and invited the Group to present its reports to the ICAO Regional Offices in order to keep the PIRGs concerned informed about their activities and outcome.

4.6 The TRASAS acknowledged the concerns expressed by the airspace users regarding the operational constraints and route flexibility issues affecting long range operations between North America and China. The TRASAS noted that the limited flexibility resulted in less efficient operations, increased fuel burn and increased emissions, and contributed to delays at the major China airports and operations over China. Therefore the TRASAS agreed to provide the necessary support to encourage China to increase the operational efficiency, of both Cross Polar and non-polar operations, by increasing the number of entry and exit fixes and approving more routing options within China and agreed to the following:

TRASAS Conclusion 4/3 – Increased operational efficiency of Cross Polar and non-Polar- operations

That China is invited to augment the operational efficiency of both Cross Polar and non-Polar operations by:

- a) increasing the number of entry and exit points; and
- b) opening more routing options within China airspace

4.7 The TRASAS was presented with proposals for inter-regional advanced Air Traffic Services (ATS) route development projects, designed to use the most efficient Performance-based Navigation (PBN) navigation specifications, a certain degree of prioritisation, and end-to-end planning to link major sub-regions in the future. In order to progress work, the TRASAS discussed the possibility of establishing trans-regional groups to study 'advanced' ATS Organised Track Structures (OTS) so as to provide the most efficient and environmentally friendly outcomes possible in the medium to long term timeframe.

4.8 The TRASAS agreed it was necessary to plan advanced routing systems well in advance of scheduled implementation to provide long lead times for aircraft equipage, ANS improvements needed to support the operation, and the necessary training and approvals. Therefore, and in accordance with the Aviation System Block Upgrades (ASBU) Block 1 capability availability, the TRASAS agreed that work should commence as soon as possible within several trans-regional 'advanced' ATS route working bodies. These bodies would be tasked with identifying and agreeing on future advanced end-to-end routing systems providing for a maximum benefit from the infrastructure improvements brought by ASBU.

4.9 Therefore the TRASAS agreed to the following:

TRASAS Conclusion 4/4 – Advanced Inter-Regional ATS Route Development Task Forces

That the TRASAS:

- a) endorse the concept of advanced PBN Highways utilising the most efficient PBN standards, prioritisation for efficient flight levels and the least restrictive civil/military practices to link major population centres; and
- b) Support the set-up of Advanced Inter-Regional ATS route Development Task Forces (AIRARD/TF), with a proposed route implementation date in the 2018 -2020 timeframe.

Note: Suggested AIRARD/TFs may include: Europe – East/Southeast Asia; East Asia – North America; North America – Europe. The concerned PIRGs to agree on the ToRs and Working Programme

5. Integration and Harmonization of NextGen, SESAR, and other regional and national modernization plans, including interface issues and the relationship with the new GANP and ASBU; Update on Implementation of Aviation Systems Block Upgrades (ASBU)

5.1 The TRASAS noted the information provided on the activities regarding the integration and harmonization of NextGen and SESAR and the status of implementation of the ICAO Aviation System Block Upgrades (ASBUs) Block 0 in support of the Global Air Navigation Plan (GANP). The TRASAS acknowledged that in order to coordinate the modernization of the global air navigation system, it was important to have a harmonised plan for aviation regulators, operators and industry to follow. The planning, development, training and implementation of a globally harmonised system were contingent within a framework that included scalable plans and provided operational, economic, and safety benefits

5.2 The TRASAS was informed that the collaborative harmonization work between Europe and the United States was taking place under a Memorandum of Cooperation (MOC) on Civil Aviation Research and Development that was signed in March 2011. It was noted that the Coordination Committee (CCOM), the managing body overseeing the agreement between NextGen and SESAR was reviewing the progress toward harmonization between these two modernization programs. The CCOM encouraged the initiation of activities early in the research and development phase to most effectively ensure harmonization and implementation. This allowed for the maximization of harmonization and efficiencies for the aviation system and allowed for joint development efforts in support of this harmonization.

5.3 The TRASAS also noted an update on the Asia and Pacific Initiative to Reduce Emissions (ASPIRE) that was established in early 2008 by a small group of Air Navigation Service Providers (ANSPs) sharing the desire to collaborate to minimise the impact of aviation on the environment. ASPIRE promoted Air Traffic Management (ATM) environmental best practice in all stages of flight, maintained an ambitious work program focused on continuous improvement, and encouraged the continuous monitoring of ANSPs' environmental performance through the ASPIRE-Daily program. With the close support of airline partners, the ASPIRE ANSPs continued to demonstrate the significant environmental benefit deliverable through collaborative ATM with a focus on assuring optimum environmental performance.

5.4 The TRASAS recognized the progress and performance and noted the program updates by the ASPIRE Partnership published on an annual basis in the ASPIRE Annual Report (the latest ASPIRE Annual Report was published by the ASPIRE coordinators in December 2013 and was available on the ASPIRE website at <http://www.aspire-green.com/>). The TRASAS also noted the establishment of the ASPIRE-Daily program to identify city-pair routes where ASPIRE best practices were available on a daily basis.

5.5 The TRASAS was informed about the first Mini-Global Demonstration conducted from 16 to 17 September, 2014 by the United States and its partners. This Mini-Global Demonstration was a collaborative effort between the US Federal Aviation Administration, the Civil Aviation Authority of Singapore, the Japan Civil Aviation Bureau, NAV Canada, the Republic of Korea, AEROTHAI, Airservices Australia, and European partners.

5.6 The main goal of the Mini Global Demonstration was to demonstrate the use of System Wide Information Management (SWIM) and established standards in a seamless transfer of data between air navigation service providers, all in support of the goal to ultimately promote more efficient operations across multiple Flight Information Regions (FIRs). Demonstrations allowed for new technologies, procedures, and programs to be tested and improved upon, all to promote modernization and harmonization of aviation systems across the globe. The Mini-Global Project Demonstrations tested the seamless exchange of flight, aeronautical and weather information across borders using standard information exchange models. .

5.7 The TRASAS noted the information on the progress achieved regarding AIM implementation in the CAR Region for AIS to AIM transition and the information on the implementation of the Fourth Edition of the Global Air Navigation Plan (GANP) based on the Aviation Systems Block Upgrades (ASBU) approach in the ICAO EUR Region.

5.8 The TRASAS was informed that in order to fulfil the prioritization exercise which had been requested from PIRGs, the EANPG agreed to monitor and report to ICAO HQ 6 modules listed as Priority 1. These modules (i.e. B0-APTA, B0-SURF, B0-FICE, B0-ACAS, B0-SNET and B0-DATM) would be applicable to the whole EUR Region and would offer significant benefits and a higher safety contribution. This initial prioritization would not signify that the rest of the modules could not be assigned higher urgency by specific States and areas based on the local operational requirements. It was also noted that the EANPG agreed that one of the future objectives would be to include all 18 B0 modules and gradually B1 modules, for regional planning, reporting and monitoring mechanisms, as part of the future revisions of the ASBU Implementation Plan.

5.9 This TRASAS meeting was presented with information on the Asia/Pacific's Seamless Air Traffic Management (ATM) implementation and monitoring process, which expanded to incorporate the ASBUs. The TRASAS noted that the APAC Region had specific priorities, mainly due to the need to address more basic Communications, Navigation, Surveillance (CNS) infrastructure enhancements compared to North America and Europe. Two of the ten regional priorities also involved non-ASBU elements (civil/military cooperation in respect of strategic and tactical civil/military mechanisms, while another regional element dealt with Special Use Airspace (SUA)).

5.10 It was noted that in the APAC Region, a comprehensive and sophisticated user friendly on-line mechanism was being developed to enable States to report implementation progress of each Seamless ATM element. Thus, the ICAO Air Navigation Report Form (ANRF) would not be used by individual States for reporting, as these forms would be too onerous to manage and were not well designed for this purpose. The other regions were invited to review the on-line reporting mechanism to see if it could meet their needs in data collection.

5.11 Therefore the TRASAS agreed to the following:

TRASAS Conclusion 4/5 – Harmonising Regional ATM Modernisation Implementation and Monitoring Processes

That ICAO monitors and reviews its regional ATM modernisation implementation and monitoring processes involving seamless ATM and ASBUs to ensure convergence amongst the regions over time, by:

- a) recognising that Regional Offices should be actively involved in the revision of future global GANP priorities and targets;
- b) PIRGs sharing information on the progress towards regional targets and the development of future regional priorities;
- c) reviewing the APAC Seamless ATM on-line reporting mechanism to facilitate a future harmonised global reporting system; and
- d) recognizing that ANRF were high level planning tools that should not be completed by individual States and would be better termed Air Navigation *Planning* Forms.

6. Update on Extreme Weather Activities

Volcanic Ash Activities

6.1 The TRASAS received a summary brief on volcanic ash exercises using volcanoes in Kamchatka, Russian Federation, that influenced several ICAO Regions (EUR, APAC and NAM), and in particular, trans-east routes, northern Pacific routes (NOPAC) and Pacific Organized Track System (PACOTS).

6.2 The TRASAS noted that under the guide of the European Air Navigation Planning Group (EANPG) Programme Coordinating Group (COG), the Volcanic Ash Exercises Steering Group for the (Far) Eastern part of the EUR Region (EUR (EAST) VOLCEX/SG) had met five times since 2012 to plan and conduct exercises called VOLKAM as well as develop recommendations at debrief meetings (specifics for any particular event were to be found at the ICAO Portal under RO_EURNAT and EEVOLCEXSG).

6.3 It was noted that the highlights of the previous volcanic ash exercise called VOLKAM14 included the following:

- a) Successfully utilized contingency re-route and associated procedures as per the Exercise Letter of Agreement (LOA) between Petropavlovsk-Kamchatsky and Fukuoka FIRs;
Recommended a permanent LOA between Petropavlovsk-Kamchatsky and Fukuoka for handling cross border flights (including contingencies)
- b) Special air-reports on volcanic ash were successfully sent from ACC (received by email from dispatch) to VAAC Tokyo by AFTN and email and from ACC to Meteorological Watch Office (MWO) to SADIS via AFTN with the correct bulletin header;
- c) Volcanic ash advisory centre handover from Tokyo to Anchorage was successful, but improvements noted for the future.
Recommended VAAC Tokyo and Anchorage handover procedure include an acknowledgement of handover
- d) To meet the users' needs of having more updates related to the location of volcanic ash given the source (Kamchatka/Kurile Islands) is quite near the NOPAC routes if wind is strong from the west/northwest – VAAC Tokyo agreed to provide Volcanic Ash Advisory and corresponding graphic (VAG) every 3 hours (versus 6 hours), when necessary. This will assist the airlines in their re-routes by not overcompensating for the forecast of volcanic ash; and
- e) Develop a document containing procedures for volcanic ash events that impact trans-east routes, northern Pacific (NOPAC) routes and Pacific Organized Track System (PACOTS) that contains contact information for a real eruption as well as re-route procedures, sequence of events to be conducted by stakeholders, teleconference procedures, and examples of

volcano observation notification for aviation (VONA), volcanic ash advisories (VAA) and corresponding graphic (VAG), SIGMET, NOTAM and special air-report on volcanic ash.

6.4 The TRASAS noted the inclusion, in future developments, the proposed route structure as tested in a) above, based on the many defined points used in the VOLKAM contingency airways.

6.5 With reference to e) above, the TRASAS agreed continuing its development (e.g. filling out the operational points of contact, developing a procedure for establishing PACOTS during a volcanic ash event which involves Japan and the US, as well as providing a more simplified NOTAM that points to SIGMET information used for tactical decision making and VAA/VAG used for flight planning) and agreed to the following:

TRASAS Conclusion 4/6 – Draft Guide on Operations when Volcanic Ash Impacts NOPAC, PACOTS and trans-east routes

That the EUR (EAST) VOLCEX/SG:

- a) Continue to develop the draft Guide on Operations when Volcanic Ash Impacts NOPAC, PACOTS and trans-east routes by ;
 - i) updating operational focal points
 - ii) developing procedures to establish PACOTS during volcanic ash events
 - iii) provide simplified NOTAM examples pointing to information (e.g. SIGMET for tactical decision making and VAA/VAG for planning)
 - iv) any other points identified by the group.
- b) Publish the Guide on the ICAO portal;
- c) Consider the guide as a supplement to respective regional volcanic ash contingency plans; and
- d) Notify concerned parties of the above.

6.6 The TRASAS also noted that a special implementation project for VOLKAM in 2014 entailed the continuation of VOLKAM in addition to familiarizing the Regional Officer – MET of the Asia/Pacific Regional Office in conducting volcanic ash exercises, as well as planning and debrief meetings. The APAC RO successfully participated in three events in 2014 in order to gain practical experience, which would be used to assist the ICAO APAC Office in developing and conducting volcanic ash exercises for the APAC Region.

6.7 It was noted that in view of regional support for conducting volcanic ash exercises in the APAC Region, APANPIRG/25 (Kuala Lumpur, Malaysia, 8 to 11 September 2014) adopted a decision to establish an APAC volcanic ash exercises steering group to organize and conduct volcanic ash exercises in the APAC Region (ANPANPIRG Decision 25/47 refers). The APAC volcanic ash exercises steering group would comprise, at a minimum, representation from regional ANSPs, air space users, ICAO, regulators and VAACs, and was envisaged to organize and conduct its first volcanic ash exercise in the APAC Region in 2015. Under its terms of reference, the APAC volcanic ash exercises steering group would ensure representation from the broader stakeholder group (e.g. airport operators, MWOs, RODBs, volcano observatories) as necessary, during each phase of the volcanic ash exercises (i.e. planning, conducting, debrief).

6.8 As there was a significant regional variation in the nature, frequency, observation of and response to volcanic eruptions, and several States would have regular air traffic flow in areas at risk from encounters with volcanic ash, it was envisaged that each exercise in the APAC Region could have different

objectives and scenarios. For example, this could entail small exercises based on sub-regional scenarios testing the coordination between:

- a) the volcano observatory in the Philippines, VAAC Tokyo, associated Meteorological Watch Offices, NOTAM Offices, select airline operators and relevant ATM Centres;
- b) the volcano observatory in Indonesia and VAAC Darwin;
- c) the volcano observatory in Tonga and VAAC Wellington;
- d) etc.

Extreme Weather Conditions

6.9 The TRASAS was informed about the hazardous phenomena activities taking place in the CAR/SAM regions, such as volcanic ash, associated with regional Aeronautical Meteorology Programme implementation activities. The TRASAS also noted the development of a draft operations concept for the provision of space weather information by the International Airways Volcano Watch Operations Group (IAVWOPSG) in support of international air navigation. The TRASAS noted that the United States had been very active in space weather activities since TRASAS/3 (October 2010), leading the proposed introduction of space weather information into ICAO Annex 3. The new provisions, currently under development to cover the service requirements and capabilities, would be incorporated in the Amendment 78 (2018) to Annex 3.

Global ATS surveillance through space-based ADS-B

6.10 The TRASAS was presented with information on an initiative to provide global ATS surveillance through the use of space-based reception of ADS-B signals. Similar information had been provided to the 49th and 50th meetings of the North Atlantic Systems Planning Group (NAT SPG), the 55th meeting of the European Air Navigation Planning Group (EANPG) and the 4th meeting of the North American, Central American and Caribbean Working Group (NACC WG).

6.11 Installing and maintaining ground-based ATS surveillance infrastructure was difficult or prohibitively expensive in many areas and it was impossible in oceanic areas. Space-based reception of ADS-B signals would overcome these limitations and those imposed by “line of sight” requirements for ground-based surveillance systems. ATM systems would be able to detect any aircraft with the appropriate ADS-B equipment, anywhere in the world.

6.12 The TRASAS noted that industry proponents of the space-based ADS-B concept had presented information to the 12th Air Navigation Conference (AN-Conf/12) (19 to 30 November 2012, Montreal, Canada). The Conference agreed to the following:

Recommendation 1/9 – Space-based automatic dependent surveillance - broadcast

That ICAO:

- a) *Support the inclusion in the Global Air Navigation Plan, development and adoption of space-based automatic dependent surveillance - broadcast surveillance as a surveillance enabler;*
- b) *Develop Standards and Recommended Practices and guidance material to support space-based automatic dependent surveillance - broadcast as appropriate; and*
- c) *Facilitate needed interactions among stakeholders, if necessary, to support this technology.*

6.13 As noted in the *Twelfth Air Navigation Conference Report* (Doc 10007, AN-Conf/12), the follow up action expected of the Air Navigation Commission was to approve a) to c) and include them in its work programme.

6.14 The TRASAS was informed that Canada has been highlighting, within the working structure of the International Telecommunication Union (ITU), the need to expand the current 1090 MHz allocation for ADS-B signals. At present, the frequency spectrum was only protected for terrestrial use. To ensure there would be no interference for satellite reception of these signals, the spectrum protection would need to include space-based use.

6.15 An ATM Concept of Operations was developed to support coordination and discussions between stakeholders. The main subject of the Concept was the path towards a trial use of space-based ADS-B in the ICAO North Atlantic (NAT) Region. Further detailed development of this Concept would be done within the working structure of the North Atlantic Systems Planning Group (NAT SPG), in accordance with NAT SPG Conclusion 50/07 - *Space-Based ADS-B Initiative*. Prior to any NAT trials, NAV CANADA would complete “proof of concept” activities within the Canadian Domestic Airspace to validate procedures and safety cases. A Safety Management Plan had been initiated, and planning had commenced for the specific analyses and safety management reports to be completed for each step in the operational implementation. The required ATM system changes had been identified and the supporting work programmes were being developed.

6.16 The TRASAS noted with interest the development of providing ATS surveillance through the use of space-based reception of ADS-B signals and recalled that this development would respond to the TRASAS Conclusion 2/3 – *Improved Surveillance and Communications in the Northern Airspace*. Therefore it agreed to the following:

TRASAS Conclusion 4/7 – ICAO Actions to Support the Implementation of ATS Using Space-Based ADS-B

That the TRASAS, acknowledging the potential benefits from the space-based reception of Automatic Dependent Surveillance-Broadcast (ADS-B), encourages ICAO to:

- a) support development of any necessary provisions or guidance material; and
- b) take any other steps necessary to support the implementation of ATS surveillance using space-based ADS-B.

TRASAS Conclusion 4/8 – Expansion of the 1090 MHz allocation for ADS-B

That the TRASAS, acknowledging the potential benefits from the space-based reception of Automatic Dependent Surveillance-Broadcast (ADS-B), and noting that the current 1090 Mega Hertz (MHz) allocation for ADS-B is limited to terrestrial use, recommends that all TRASAS Members and Observers take the necessary steps within their administrations and organizations to ensure that representatives to the International Telecommunication Union’s 2015 World Radiocommunication Conference (ITU WRC-15) and preparatory events are:

- a) aware of the need for WRC-15 to discuss expanding the 1090 MHz allocation for ADS-B to include the aircraft to satellite signal; and
- b) support expanding the allocation.

7. Short term, medium term and long term goals of TRASAS

Review of the TRASAS Action List

7.1 The TRASAS reviewed and agreed on changes to the TRASAS Action List, which is presented at **Appendix C**. The TRASAS/4 Follow-up Task List presented at **Appendix D** was compiled in order to help the implementation of agreed actions and conclusions.

Progress on implementation of Performance Based Navigation (PBN)

7.2 The TRASAS noted the work being done in the Regions (APAC, EUR, NAT, NAM and CAR) on the implementation of PBN as a tool that would enable increased efficiency in the utilisation of airspace.

7.3 The TRASAS noted as well the EANPG Statement 55/1 – *Prioritization of RNP APCH implementation in the EUR Region* and the shared concern of all Regions with respect to the lack of appropriate resources for procedure designers and PANS OPS safety oversight experts and agreed that action should be taken at regional and global level in order to assist in resolving the identified shortcomings in the PANS-OPS design and oversight areas

English Language Requirements Implementation (LPRI)

7.4 The TRASAS was presented with information regarding challenges in front of the stakeholders in the ICAO EUR Region to support the implementation and maintenance of the ICAO requirements on language proficiency, due to the fact that the aviation language training and testing were unregulated and also due to the lack of proper regulatory oversight.

7.5 The TRASAS recalled that the language proficiency requirements had progressively become applicable since March 2003, when language provisions had been adopted to address a critical safety concern. Although States had made substantial progress in implementing the language provisions, language proficiency testing remained largely unregulated, which had resulted in substantial variability in terms of how the issue was handled and the outcomes that had been achieved.

7.6 It was recalled that the 38th Session of the ICAO Assembly adopted Resolution A38/8 *Proficiency in the English language used for radiotelephony communications*, which encouraged ICAO to assist States with the implementation of the English language proficiency requirements by strengthening existing partnerships with other organisations and fostering new relationships. ICAO would continue to monitor the implementation of the language proficiency requirements through the protocol questions of the Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA), and make available implementation information on the ICAO website (ICAO State Letter 2014/ 31 refers).

7.7 The TRASAS was informed that in support of ICAO's Strategic Objective – Safety – and as a follow-up of the European Air Navigation Planning Group (EANPG) and its Programme Coordinating Group (COG), and based on the conclusions and decisions related to the implementation of the ICAO language proficiency requirements in the ICAO European Region, a series of issues relating to the implementation and maintenance of the language proficiency requirements need to be addressed, including *inter alia*, the lack of transparency in the State oversight activities on LPR implementation and the activities performed by the assessment bodies and the lack of harmonization regarding the requirements for the establishment of language assessment bodies.

7.8 The LPRI subject was discussed at length by TRASAS, covering aspects from several stakeholders' perspective, and agreed that the organisation of an inter-regional workshop would provide an excellent opportunity to improve safety from an inter-regional perspective and would allow States to exchange information and experiences with implementing ICAO language proficiency requirements, testing practises, training issues related to language proficiency requirements implementation and the role of the civil aviation authorities, service providers and aircraft operators in regards to the requirements.

7.9 Therefore the TRASAS agreed to the following:

TRASAS Conclusion 4/9 – Interregional ICAO workshop on the language proficiency requirements implementation

That the appropriate ICAO Regional Offices, organise and convene a joint Language Proficiency Implementation and Harmonisation Workshop for the States in the ICAO Asia/Pacific, European and Middle East Regions, during second half of 2015.

8. Arrangements for future TRASAS activities

Revised Terms of Reference

8.1 The TRASAS discussed the current Terms of Reference (ToRs), arrangements of the TRASAS work format and meetings and agreed to revise the ToRs to better reflect the current global and regional realities. The revised version of the ToRs, as approved by TRASAS/4 is presented at **Appendix B**.

8.2 The TRASAS agreed that the Group should tentatively meet every two years, or as needed, at the initiative of the ICAO Regional Offices concerned, any of the members or/and the CPWG.

8.3 The TRASAS agreed to plan, tentatively, the fifth meeting of the Trans-Regional Airspace and Supporting ATM Systems Steering Group (TRASAS/5), to take place in 2016, in Paris at the premises of the ICAO European and North Atlantic Office (EUR/NAT). The Group will receive confirmation of the future meeting at least six months prior to the envisaged dates.

9. Any other business

9.1 The TRASAS members expressed their regrets at the very weak participation in this Fourth meeting and invited all stakeholders to provide the necessary support for future meetings.

APPENDIX A - LIST OF PARTICIPANTS

(Paragraph 1.5 refers)

CANADA

Jeff DAWSON

CHINA

Not represented

DENMARK

Not represented

FINLAND

Not represented

ICELAND

Not represented

JAPAN

Not represented

NORWAY

Not represented

RUSSIAN FEDERATION

Not represented

UNITED STATES

Heather HEMDAL

Kevin HAGGERTY

Leah MOEBIUS

Steve PINKERTON

J. Mark REEVES

APANPIRG

Not represented

IATA

Gene CAMERON

Blair COWLES

Owen DELL

IFALPA

Amornvaj MANSUMITCHAI

ICAO BANGKOK

Arun MISHRA **(RD)**

Yoshiki IMAWAKA **(DRD)**

Peter DUNDA

Len WICKS

ICAO CAIRO

Mohamed KHONJI **(RD)**

ICAO MEXICO

Loretta MARTIN **(RD)**

ICAO PARIS

Luis FONSECA de ALMEIDA **(RD)**

George FIRICAN **(DRD)**, Secretary of the Meeting)

APPENDIX B - TERMS OF REFERENCE OF THE TRANS-REGIONAL AIRSPACE AND SUPPORTING ATM SYSTEMS STEERING GROUP (TRASAS)

AS APPROVED BY TRASAS/4, OCTOBER 2014

(Paragraph 8.1 refers)

1. Introduction

1.1 In order to continue work already done concerning the traffic in the Northern area and to respond to the new requirements for increased efficiency and further developments, co-ordinated efforts of the international civil aviation community is required. It would involve States and Organisations from five of the ICAO Regions: EUR, ASIA, NAM, NAT and PAC. *A Trans-Regional Airspace and Supporting ATM Systems Steering (TRASAS) Group shall, under the guidance from the Council of ICAO as appropriate, respond to these requirements under the following Terms of Reference.*

2. Purpose and objectives

2.1 The ICAO Trans-Regional Airspace and Supporting ATM Systems Steering (TRASAS) Group shall co-ordinate the requirements of international civil aviation for a coherent and economically viable and operationally optimal structure of ATS routes, linking city-pairs in Europe and Asia, Europe and North America and Asia and North America. The airspace and the route network shall have sufficient flexibility to plan different flight paths, day-by-day, to take advantage of prevailing upper winds.

2.2 The Group shall work in close co-operation with aircraft operators' international organisations in order to ensure that known and expected requirements for international and domestic routings and cost-effective implementation are taken into account. The Group will also take account of the requirements for adequate feeder and connection routings to enable optimal access to the route network from points of departure and points of destination, upstream, downstream and from within its vicinity. The scope of the work will respond to the global objectives of the ICAO operational concept as defined in the *ICAO Global Air Traffic Management Operational Concept* (Doc 9854) and companion manuals (e.g. the *Manual on Air Traffic management System Requirements* (Doc 9882) and the *Manual on Global Performance of the Air Navigation System* (Doc 9883) and support the implementation of the *ICAO Global Air Navigation Plan* (GANP) (Doc 9750-AN/963, Fourth Edition – 2013).

3. Scope of work

3.1 The TRASAS Group shall make proposals and promote improvements for the safety and efficiency of the Northern area airspace and route structure and the supporting ATM systems within the States affected by such proposals. It shall base its work on aircraft operators' requirements, which may be expanded and complemented, as necessary.

3.2 The Group shall take into account modern Performance based Navigation (PBN) and communications and surveillance requirements (required communication performance (RCP) and required surveillance performance (RSP)) in accordance with the ICAO GANP strategic methodology, take into account the on-going air navigation improvement programmes (e.g. SESAR, NEXTGEN, CARATS and others in Canada, China, India and the Russian Federation), plan for an orderly transition period and ensure the seamlessness of the flight operations across the Regions. This transition should also enable a seamless migration of current aircraft fleets to full compliance with the next generation of ground and avionics technologies that would be deployed to serve flight operations in the airspace concerned in the future.

3.3 The Group shall not substitute itself for other existing bodies which are active under the auspices of ICAO (e.g. European Air Navigation Planning Group (EANPG), North Atlantic Systems Planning Group (NAT SPG), ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG), etc.) or bodies operating as bilateral/multilateral State initiatives. It may provide guidance as well as a co-ordinating function for these Groups working on the various technical and operational aspects related to the intended transit route network and to combine the results into one coherent overall plan. This will lead to the amendment, if and when required, of the ICAO Regional Air Navigation Plans (ANPs) in accordance with procedures established by the ICAO Council.

3.4 In addition to its technical work on the newly established route system, the TRASAS Group shall explore proposals for cost recovery and financing for this system.

4. Activities

- a) To promote a modern, efficient and cost-effective international ATS route network and routings linking city-pairs in Europe, Asia and North America, taking into account the recognized requirements of the airspace users, taking advantage of seasonal wind patterns, and making use of modern technology in accordance with the ICAO GANP provisions;
- b) To promote efficient air traffic management and associated systems to improve safety, increase capacity and enhance operational and economic efficiency;
- c) To promote the provision of sufficient capacity so as to avoid the need for air traffic flow management (ATFM);
- d) To develop a coherent transition plan enabling a seamless migration of current aircraft fleets to full compliance with the next generation of ground and avionics technologies that would be deployed to serve flight operations; and
- e) To harmonize and implement Aviation System Block Upgrades (ASBUs).

4.1 TRASAS will closely cooperate with existing bodies working on relevant tasks and may also establish Contributory Working Bodies (CWB) that shall work on its behalf on specific expert issues (airspace and route network developments, communications, surveillance, airport issues, Search and Rescue etc), and to promote civil military coordination and cooperation.

5. Composition

5.1 The TRASAS Group shall be composed of high level representatives with operational and technical expertise from Canada, China, Democratic People's Rep. of Korea, Denmark, Finland, Iceland, Japan, Kazakhstan, Mongolia, Norway, Republic of Korea, Russian Federation, the United States, Uzbekistan and from international organisations representing aircraft operators' (e.g. IACA, IATA, IBAC) and pilot associations (IFALPA) and the Chairpersons of the ICAO Planning and Implementation Regional Groups (PIRGs) of the ASIA, EUR, NAM, NAT and PAC Regions, namely the ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG), the European Air Navigation Planning Group (EANPG) and the North Atlantic Systems Planning Group (NAT SPG).

5.2 The TRASAS Group shall work under the auspices of ICAO. The EUR/NAT Office shall provide full secretarial support to the Group.

5.3 The Group may invite participation from other States which may be concerned during the progress of its work (e.g. States in Middle East, former Central Asia, in the South Caucasus area, and others) and international organizations which may provide useful input during its deliberations.

6. Reporting

6.1 Reports of the TRASAS shall be prepared by the ICAO Secretariat in the usual standard fashion. As reports of an informal group, this documentation will be made available to participating States and international organization(s) and shall be distributed to the Planning and Implementation Regional Groups (PIRGs) [in particular, the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG), the European Air Navigation Planning Group (EANPG) and North Atlantic Systems Planning Group (NAT SPG)] for their information and to facilitate co-ordination which may be required within their respective work programmes.

6.2 The Council of ICAO shall be informed about the progress of the work of TRASAS.

7. Communication

7.1 As far as possible, members and participants in the work of TRASAS shall correspond by electronic mail. Their communications should be as informal as possible to ensure rapid progress of the work programme. TRASAS should meet as needed at the initiative of ICAO Regional Offices, any of the members and the CPWG (tentatively every two years).

8. Target dates and deliverables

8.1 TRASAS shall establish a comprehensive work programme containing target dates and milestones to be achieved. It should strive to complete its tasks in the shortest possible time.

**APPENDIX C - ACTION LIST OF THE TRANS-REGIONAL AIRSPACE AND SUPPORTING ATM SYSTEMS
STEERING GROUP (TRASAS)**

(Paragraph 7.1 refers)

Task No.	Task Description	Action by	Target Date	Progress / Remarks
1/1	Opening of new routes and improved efficiency of the current routes	PIRGs, CPWG, CMRI, States, IOs	2011-2015 onwards	On-going; Still valid.
1/2	Improvement of the air navigation services coverage and hours of operations	States	2007-2010	RF report: Additional airspace and new routes became available 24/7. Several other FIRs to become 24/7 by September 2008. Further improvement expected through the FIR consolidation process. Completed.
1/3	ACC consolidation	States	RF – 2007-2015	RF – ACC consolidation on-going; expected to be finalised by 2015
1/4	Implementation of RVSM in China, Russian Federation (RF) and other States	RF, States, PIRGs, ICAO	RF (2011)	China – completed RF and EURASIA States – November 2011 Completed.
1/5	Develop improved ATFM tools to be shared amongst States concerned until target capacity is met	PIRGs, States, ANSPs, CPWG, TRASAS	2011-2015	Stakeholders concerned to investigate the applicability of BOBCAT system and tools Still valid; cooperation between EUROCONTROL CFMU and MATMC (RF) resumed with intention to involve EURASIA Council and BOBCAT.
1/6	Ensure improved surveillance and communications in the Northern Airspace	NATSPG, States, ANSPs, TRASAS	2007-2015	Progress noted – NAT SPG established a TF consisting of stakeholders concerned providing services over 80N [Iceland, Canada, USA, RF & Norway] to assess existing communication infrastructure and propose a way forward. TRASAS/4 noted the on-going initiative to provide global ATS surveillance through the use of space-based reception of ADS-B signals

Task No.	Task Description	Action by	Target Date	Progress / Remarks
1/7	Ensure airport availability for ETOPS aircraft/operations	States, IOs, Manufacturers, TRASAS	2007-2012	No significant developments reported - competition policies prevent IATA and operators from providing predictive information that would be useful to progress this issue. ICAO invited to provide clarification on emergency and alternate airports requirements.
1/8	Ensure improved access to China and Russian Federation airspace	China, RF, TRASAS, ICAO	2011-2015	On-going CMRI planned to take place in May 2011 to address this issue. China invited to review new entry/exit points in view of RVSM implementation in RF.
3/1	Support and supervise the IATA “Pacific Project”	States, IOs, ANSPs, CPWG, TRASAS, IPACG	2011-2015	TRASAS Conclusion 4//2 – <i>Support for the Pacific Project</i>
3/2	Foster PBN implementation	PIRGs, States, IOs, ANSPs	2011-2015	On-going
3/3	Include the application of ReLongSM to CPWG work program	CPWG	2011-2014	On-going
4/1	Afghanistan Contingency Planning	ICAO, States, IOs	2014	
4/2	Support the Pacific Project	the United States, Canada, Japan, the Russian Federation	2014-2018	
4/3	Increased operational efficiency of Cross Polar and non-Polar operations	China, Mongolia, the Russian Federation	2014-2018	
4/4	Advanced Inter-Regional ATS Route Development Task Forces	ICAO, ROs, States, IOs	2015-2020	
4/5	Harmonising Regional ATM Modernisation Implementation and Monitoring Processes	ICAO, ROs, States, IOs	2014-2018	
4/6	Draft Guide on Operations when Volcanic Ash Impacts NOPAC, PACOTS and trans-east routes	EUR (EAST) VOLCEX SG	2014-2015	
4/7	ICAO Actions to Support the Implementation of ATS Using Space-Based ADS-B	TRASAS, all Stakeholders	2015-2020	

Task No.	Task Description	Action by	Target Date	Progress / Remarks
4/8	Expansion of the 1090 MHz allocation for ADS-B	TRASAS, all Stakeholders	2015-2020	Support the need for WRC-15 to discuss expanding the 1090 MHz allocation for ADS-B to include the aircraft to satellite signal
4/9	Interregional ICAO workshop on the language proficiency requirements implementation	TRASAS, all Stakeholders	Second half of 2015	

APPENDIX D - TRASAS/4 FOLLOW UP TASK LIST*(Paragraph 7.1 refers)*

X-REF	ACTION	WHO	WHEN/WHAT
3.5	<p>TRASAS Conclusion 4/1 – Afghanistan Contingency Planning</p> <p>a) ICAO continues to provide maximum resources to support the AHACG meetings and the concomitant high level liaison required to support the development of an appropriate Afghanistan contingency scheme; and</p> <p>b) States are urged to support the contingency planning effort</p>	ICAO, States, IOs	Before the end of 2014
4.2	<p>TRASAS Conclusion 4/2 – Support for the Pacific Project</p> <p>a) TRASAS reaffirms support for the Pacific Project as agreed in 2010 at TRASAS/3; and</p> <p>b) urges the United States, Canada, Japan and the Russian Federation to work cooperatively with airspace users to improve airspace efficiency between North America and Asia.</p>	the United States, Canada, Japan and the Russian Federation	On-going
4.6	<p>TRASAS Conclusion 4/3 – Increased operational efficiency of Cross Polar and non-Polar operations</p> <p>That China is invited to augment the operational efficiency of both Cross Polar and non-Polar operations by:</p> <p>a) increasing the number of entry and exit points; and</p> <p>b) opening more routing options within China airspace.</p>	China	ASAP (2015-2016)

X-REF	ACTION	WHO	WHEN/WHAT
4.8	<p>TRASAS Conclusion 4/4 – Advanced Inter-Regional ATS Route Development Task Forces</p> <p>That the TRASAS:</p> <p>a) endorse the concept of advanced PBN Highways utilising the most efficient PBN standards, prioritisation for efficient flight levels and the least restrictive civil/military practices to link major population centres; and</p> <p>b) Support the set-up of Advanced Inter-Regional ATS route Development Task Forces (AIRARD/TF), with a proposed route implementation date in the 2018 -2020 timeframe.</p> <p><i>Note: Suggested AIRARD/TFs may include: Europe – East/Southeast Asia; East Asia – North America; North America – Europe. The concerned PIRGs to agree on the ToRs and Working Programme</i></p>	TRASAS, ICAO, APANPIRG, EANPG	2015-2020
5.11	<p>TRASAS Conclusion 4/5 – Harmonising Regional ATM Modernisation Implementation and Monitoring Processes</p> <p>That ICAO monitors and reviews its regional ATM modernisation implementation and monitoring processes involving seamless ATM and ASBUs to ensure convergence amongst the regions over time, by:</p> <p>a) recognising that Regional Offices should be actively involved in the revision of future global GANP priorities and targets;</p> <p>b) PIRGs sharing information on the progress towards regional targets and the development of future regional priorities;</p> <p>c) reviewing the APAC Seamless ATM on-line reporting mechanism to facilitate a future harmonised global reporting system; and</p> <p>d) recognizing that ANRF were high level planning tools that should not be completed by individual States and would be better termed Air Navigation Planning Forms.</p>	ICAO, Regional Offices	Update to be provided at TRASAS/5

X-REF	ACTION	WHO	WHEN/WHAT
6.5	<p>TRASAS Conclusion 4/6 – Draft Guide on Operations when Volcanic Ash Impacts NOPAC, PACOTS and trans-east routes</p> <p>That the EUR (EAST) VOLCEX/SG:</p> <ul style="list-style-type: none"> a) Continue to develop the draft Guide on Operations when Volcanic Ash Impacts NOPAC, PACOTS and trans-east routes by ; <ul style="list-style-type: none"> i) updating operational focal points ii) developing procedures to establish PACOTS during volcanic ash events iii) provide simplified NOTAM examples pointing to information (e.g. SIGMET for tactical decision making and VAA/VAG for planning) iv) any other points identified by the group b) Publish the Guide on the ICAO portal; c) Consider the guide as a supplement to respective regional volcanic ash contingency plans; and d) Notify concerned parties of the above. 	EUR (EAST) VOLCEX/SG	2015
6.16	<p>TRASAS Conclusion 4/7 – ICAO Actions to Support the Implementation of ATS Using Space-Based ADS-B</p> <p>That the TRASAS, acknowledging the potential benefits from the space-based reception of Automatic Dependent Surveillance-Broadcast (ADS-B), encourages ICAO to:</p> <ul style="list-style-type: none"> a) support development of any necessary provisions or guidance material; and b) take any other steps necessary to support the implementation of ATS surveillance using space-based ADS-B. 	TRASAS	Progress to be provided at TRASAS/5

X-REF	ACTION	WHO	WHEN/WHAT
6.16	<p>TRASAS Conclusion 4/8 – Expansion of the 1090 MHz allocation for ADS-B</p> <p>That the TRASAS, acknowledging the potential benefits from the space-based reception of Automatic Dependent Surveillance-Broadcast (ADS-B), and noting that the current 1090 Mega Hertz (MHz) allocation for ADS-B is limited to terrestrial use, recommends that all TRASAS Members and Observers take the necessary steps within their administrations and organizations to ensure that representatives to the International Telecommunication Union’s 2015 World Radio communication Conference (ITU WRC-15) and preparatory events are:</p> <p>a) aware of the need for WRC-15 to discuss expanding the 1090 MHz allocation for ADS-B to include the aircraft to satellite signal; and</p> <p>b) support expanding the allocation.</p>	TRASAS, States, IOs	2015
8.3	Confirm dates TRASAS/5 (2016).	ICAO Paris	6 month prior the meeting

— END —