



AN-Conf/12-WP/162  
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## **TWELFTH AIR NAVIGATION CONFERENCE**

**Montréal, 19 to 30 November 2012**

### **REPORT TO THE CONFERENCE ON THE GENERAL PORTION**

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**REPORT OF THE  
TWELFTH AIR NAVIGATION CONFERENCE**

**LETTER OF TRANSMITTAL**

To: President, Air Navigation Commission

From: Chairman, Twelfth Air Navigation Conference

I have the honour to submit the report of the Twelfth Air Navigation Conference which was held in Montréal from 19 to 30 November 2012.



Lt. Col. (Ret'd) Oscar Derby  
Chairman

Montréal, 30 November 2012



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**REPORT OF THE TWELFTH AIR NAVIGATION CONFERENCE****Montréal, 19 to 30 November 2012****HISTORY OF THE MEETING****1. DURATION**

1.1 The Twelfth Air Navigation Conference (AN-Conf/12) was opened by the President of the Council, Mr. Roberto Kobez González, at 0930 hours on 19 November 2012 in the Assembly Hall of the Headquarters of the Organization in Montreal. The President of the Air Navigation Commission, Mr. Christian Schleifer-Heingärtner, attended and addressed the Conference. The closing Plenary was held on 30 November 2012.

**2. REPRESENTATION**

2.1 The Twelfth Air Navigation Conference was attended by 1 032 participants from 120 Contracting States and 30 Observer Delegations. A list of participants may be found on the AN-Conf/12 website @ [www.icao.int/anconf12](http://www.icao.int/anconf12). A full list will be produced for the final blue cover report.

**3. OFFICERS**

3.1 The following officers were elected at the opening Plenary meeting:

Conference Chairman:	Lt. Col. (Ret'd) Oscar Derby
Conference Vice-Chairman:	Mr. Zephania Baliddawa
Committee Chairman:	Captain John F. McCormick
Committee Vice-Chairman:	Mr. V. Somosondurum

**4. SECRETARIAT**

4.1 The Secretary of the Conference was Ms. Nancy Graham, Director, Air Navigation Bureau who was assisted by Mr. Vince Galotti, Deputy Director, Safety, Standardization and Infrastructure. She was also assisted by officers of the Air Navigation Bureau of ICAO as indicated in paragraph 6 below and by officers of other bureaux and offices of the Organization as necessary.

**5. ADOPTION OF THE AGENDA**

5.1 The agenda transmitted to the Conference by the Air Navigation Commission was adopted at the opening Plenary.

## 6. WORKING ARRANGEMENTS

6.1 The organization plan submitted to States in advance of the meeting was approved without change at the opening Plenary. The plan called for one committee as shown below:

Chairman	Captain John F. McCormick
Vice-Chairman	Mr. V. Somosondurum
Secretary	Mr. Vince Galotti, assisted by Messrs. R. Macfarlane, C. Dalton, V. Maiolla, L. Jonasson, H. Sudarshan, J. Cheong, H. Matthiesen, E. Lassooijj, M. Holm, S. da Silva, N. Halsey, K. Theil, A. Capretti, M. Marin, G. de Leon; and Mmes M. Millar, L. Cary and M. Utsunomiya

## 7. OPENING REMARKS

### 7.1 President of the Council, Mr. Roberto Kobeh González

On behalf of the Council and Secretary General of the International Civil Aviation Organization, I would like to welcome you to the Twelfth ICAO Air Navigation Conference.

Your goal for the next two weeks is to define and achieve consensus on the next steps towards realizing our collective vision of an interoperable, seamless and global air traffic management system for international civil aviation in the 21st century.

As many of you know, the process began with the Tenth Air Navigation Conference in 1991, when we agreed to move from a ground-based, to a largely satellite-based air navigation system. At the Eleventh Air Navigation Conference in 2003, we endorsed a global air traffic management operational concept and developed a related work programme.

Over the past decade, we, together, made considerable progress in moving the programme forward – laying the groundwork, maturing the technologies and procedures and developing the required Standards.

This Twelfth Air Navigation Conference is about ensuring coherent and harmonized implementation.

In recent years, a number of States undertook the modernization of their national or regional air navigation systems. The initiatives prompted other States to explore the possibility of developing their own upgrade programmes. It soon became apparent that a globally coordinated strategy was needed if we were to remain on course with our vision of a globally interoperable air navigation system.

This was emphasized by the 37th Session of the ICAO Assembly in 2010 which directed the Organization to double its efforts to meet the global needs for airspace interoperability, while maintaining its emphasis on safety.

The response was what we call the aviation system “Block Upgrade” strategy.

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The Block Upgrade systems engineering approach sets clear goals in terms of the operational improvements the aviation community has told us are needed, in order to achieve the more efficient and interoperable airspace that will permit us to safely manage future capacity demands.

This sets a rather new course with respect to our global air navigation planning, in the sense that we are collectively defining the results that we need current and future technologies to achieve. By establishing these operational goals on a consensus-driven basis, we can now realize a framework that puts innovation at the service of aviation, thereby providing States and industry with the planning and investment certainty they need over the ensuing decades.

Very importantly for many of you here today, the Block Upgrade concept is not a “one size fits all” approach. Rather, it is meant to be flexible and scalable, and it can be introduced and implemented by a State or region based on specific traffic densities and determined operational needs. All of the modules and capabilities will therefore not be required in all airspaces.

It is imperative that all regions align their regional air navigation plans with the Block Upgrade methodology by 2014. To support States in their efforts, ICAO has produced implementation kits that provide States with the necessary guidance, notably on the minimum path that each will need to pursue.

Some of you here may already be aware of certain aspects of the Block Upgrade concept. Specifications were circulated among States for comments and were reviewed at the Global Air Navigation Industry Symposium in 2011. They were also the subject of several international workshops and presentations. Based on feedback received, they were modified and improved.

In short, the Block Upgrade systems engineering concept will be at the heart of our discussions over the next two weeks.

Before we get under way, I would like to share with you a few expectations I have of this meeting.

First and foremost, of course, is endorsement for the aviation system Block Upgrade methodology.

Next, is agreement on how to promote and implement the Block Upgrade performance improvements. Here, we need to consider division of responsibilities among stakeholders for developing standards and recommended practices and technical specifications.

We also need to consider the Global Air Navigation Plan, since it will drive the planning and implementation of the Block Upgrades. As you will see this week, the Global Plan has been substantially revised and we should agree here on a revision cycle and methodology that can be submitted to the next Assembly for endorsement.

Another expectation has to do with the way we develop standards, procedures and guidance material. Most of this work is currently done by groups of experts. They have done a remarkable job over the years. Today, however, with the growing complexity of the air navigation systems, the pressure to do more with less, and the requirement to accelerate our processes, it seems to me that we need a more dynamic, multi-disciplinary and project oriented approach to developing standards. I would like the Conference to come up with options on how we can best achieve this.

At a higher level, I would hope that we all leave here with full confidence that the global air navigation community has coalesced as never before around common goals and objectives. I believe the time has come for all partners, regulators and industry alike to work ever more closely together in addressing the enormous technological, operational, environmental, sustainability and, yes, political challenges that lie before us.

As we proceed with our deliberations, a number of questions will be raised relating to financing, human factors, the needs of various categories of airspace users and the roles and responsibilities of stakeholders concerned. We may not have time to answer them all here, but we should remain conscious of the impact of our decisions and recommendations on the overall air transport system.

As always, safety remains key to all of these considerations. A highly integrated air traffic management system must be built upon the highest of safety standards. To that end, the ICAO Council has adopted Standards that require States to implement systematic and appropriate safety management programmes to ensure that safety is continuously enhanced in the provision of air traffic services.

The Council will also be reviewing a revised Global Aviation Safety Plan in advance of next year's Assembly, a document whose objectives and targets are being more closely integrated with our Air Navigation Global Plan than ever before. ICAO will be seeking to establish a more strategic approach by aligning the policies and related implementation, monitoring, analysis and reporting activities in both these areas over the coming years, recognizing their interdependence.

Progress towards achieving the goal of a safe, transparent and more efficient air traffic management system demands thinking in global, systemic terms. The comprehensive sharing of data and information by State and regional entities is a cornerstone of many of the safety and air navigation advances we now seek to implement.

This means that airspace structures can no longer be based only on national and domestic considerations as major efficiency gains will be attained through global integration rather than by rigid boundary structures. I strongly encourage you to focus on international rather than on purely national requirements and ask for cooperation and coordination between civil and military authorities for flexible use of national airspace.

ICAO is committed to meeting expectations of all stakeholders. Together, we have a formidable task ahead of us: to ensure the viability of the air navigation system of the future and its continued contribution to global economic development in a safe, secure and efficient manner.

Along these lines, I am happy to announce that the ICAO Council has approved the creation of a Regional sub-office in Beijing, China for the Asia/Pacific (APAC) Region. This decision recognizes the anticipated strong growth of traffic in the Region through the year 2030 and responds to the request of Member States for increased support from ICAO to deal effectively with the associated technical and operational challenges.

It is now an honour for me to declare open the Twelfth ICAO Air Navigation Conference and to invite the President of the Air Navigation Commission, Mr. Christian Schleifer-Heingärtner, to address the Conference and elaborate on its agenda.

I wish you very successful deliberations.

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**7.2 President of the Air Navigation Commission, Mr. Christian Schleifer-Heingärtner**

Good morning ladies and gentlemen.

On behalf of the Air Navigation Commission of ICAO, I would also like to extend to all of you a warm welcome to this milestone conference.

The President of the Council has very effectively summarized the rationale for this meeting and I want to say that I am in general agreement with the expectations he has laid out for himself and for the Air Navigation Commission.

The stakes here are high, and we must be very clear in our deliberation over the next two weeks. You are here to share the views and positions of your respective States and to tell us what it is you want us to do.

We need to hear from you what system modules we need to standardize to achieve regional and global interoperability so that we can meet our common objective— a safe, effective and efficient international aviation system that reflects the needs and aspirations of all stakeholders and, above all, those of the travelling public.

It is important to understand that States will not need to implement every module or even a whole block. Each region, subregion or country will determine any implementation requirements based on their operational needs. But if and when you see a need for an operational solution, you should follow the block upgrades and implement using the standardized modules for global harmonization and interoperability.

The block upgrade methodology and its 15 year planning horizon, reviewed and fine-tuned every three years, will pave the way for long term efficiency and safety gains, like PBN leading finally to 4D navigation.

Having said this, I want to emphasize that this is far from a brainstorming session. We are proposing for discussion:

- What we understand are the current best practices that can be implemented now.
- What we believe should be addressed over the next five years.
- And finally, the possible strategic direction of our industry, and therefore of ICAO, over the next 15 years.

So we first need to know from you whether we have overlooked some major issues or identified each of these elements correctly, or whether they should be modified. That is the content issue.

Second, we want to get some sense of priorities. We are all aware that there is more work to be done. Moreover, current financial constraints limit the ability of many States to support the work of ICAO, either through financial contributions or through the supply of experts, for whom we are always extremely grateful. That is why it is essential for us to have a very clear understanding of your priorities. This is the resource issue.

Finally, we need your thoughts on how we can all work together in a more effective way. How will we develop standards, how will we develop guidance and how will we include technical specifications? Through all of its history, ICAO has depended on the work of the expert consultative bodies, better known as panels. We want to be sure that they are always working efficiently, effectively, transparently and guided by clear principles.

My hope is that we will end up with clear guidance from you on the best way forward for ICAO. Tell us clearly what you like us to attempt to do. We know that we are presenting States with a great deal of new information over the next two weeks. What we are looking for from you, our distinguished participants, is a clear understanding of your priorities, the timelines to achieve them and what standards and guidance you require from ICAO. This will allow ICAO get the content right and help to ensure that resources are used effectively.

13. All of the members of the Air Navigation Commission will be in attendance for the duration of the Conference and we will be looking for every opportunity to engage with you on what we need to bring to the 38th Session of the ICAO Assembly next year.

May I ask the Air Navigation Commissioners, Representatives from the Industry in the Commission, as well as all the ANC State Observers to stand up and identify themselves to the Conference.

Again, I join the President of the ICAO Council in wishing all of us a successful Conference.

Thank you very much!

**LIST OF PARTICIPANTS**

CD – Chief Delegate

ACD – Alternate Chief Delegate

D – Delegate

ALT – Alternate

ADV – Adviser

COBS – Chief Observer

OBS – Observer

(An electronic version is posted on the AN-Conf/12 website @ [www.icao.int/anconf12](http://www.icao.int/anconf12))



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## AGENDA OF THE MEETING

### **Agenda Item 1: Strategic issues that address the challenge of integration, interoperability and harmonization of systems in support of the concept of “One Sky” for international civil aviation**

- 1.1: Global Air Navigation Plan (GANP) – framework for global planning
  - a) ASBU methodology and contents
  - b) Communications roadmap
  - c) Navigation roadmap
  - d) Surveillance roadmap
  - e) Avionics roadmap
  - f) Aeronautical information management (AIM) roadmap

### **Agenda Item 2: Aerodrome operations – improving airport performance**

- 2.1: Airport capacity
- 2.2: Performance-based navigation (PBN) – a practical way to improve airport performance with safety and efficiency

### **Agenda Item 3: Interoperability and data – through globally interoperable system-wide information management (SWIM)**

- 3.1: Performance improvement through the application of system-wide information management (SWIM)
- 3.2: Improved operational performance through flight and flow – information for a collaborative environment (FF-ICE)
- 3.3: Service improvement through digital AIM

### **Agenda Item 4: Optimum capacity and efficiency – through global collaborative ATM**

- 4.1: Efficient management of airspace and improved flow performance through collaborative decision-making (CDM)
- 4.2: Dynamic management of special use airspace
- 4.3: Enhanced operational decision-making through integrated meteorological information

### **Agenda Item 5: Efficient flight paths – through trajectory-based operations**

- 5.1: Improved operations through enhanced airspace organization and routing
- 5.2: Improved traffic synchronization through 4D trajectory-based operations (TBO)
- 5.3: Increased flexibility and efficiency in descent and departure profiles

### **Agenda Item 6: Future direction**

- 6.1: Implementation plans and methodologies
- 6.2: Standardization – approach to SARPs development in support of One Sky



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**GLOSSARY OF TERMS**

A-CDM	airport collaborative decision making
A-RNP	Advanced-RNP
ACAS	airborne collision avoidance system
ACAS X	new generation of airborne collision avoidance system
ADS-B	automatic dependent surveillance – broadcast
AIS	aeronautical information service
AIM	aeronautical information management
AIXM	aeronautical information exchange model
ANP	Air Navigation Plan
ANRF	air navigation report form
ANSP	air navigation service provider
ALLPIRG	All Planning and Implementation Regional Group
APEX	airport excellence in safety
APNT	alternative position, navigation and timing
ASBU	aviation system block upgrade
ATC	air traffic control
ATFM	air traffic flow management
ATM	air traffic management
ATS	air traffic services
C2	command and control
CCO	continuous climb operations
CDM	collaborative decision-making
CDO	continuous descent operations
CNS	communications, navigation, and surveillance
CTA	controlled time of arrival
CTO	controlled time over
DME	distance measuring equipment
eANP	electronic regional air navigation plan
EANPG	European Air Navigation Planning Group
EGNOS	European Geostationary Navigation Overlay Service

ETA	estimated time of arrival
FF-ICE	flight and flow – information for a collaborative environment
FIRs	flight information regions
FIXM	flight information exchange model
FOSA	flight operational safety assessment
GAGAN	GPS aided geo augmented navigation
GANP	Global Air Navigation Plan
GASP	Global Aviation Safety Plan
GATMOC	Global Air Traffic Management Operational Concept
GBAS	ground-based augmentation systems
GLONASS	GLObal navigation Satellite System
GNSS	global navigation satellite system
GPS	global positioning system
HLCAS	High-level Conference on Aviation Security
IFSET	ICAO fuel savings estimation tool
IM	interval management
IMT	international mobile telecommunications
INS	inertial navigation system
ITP	in-trail procedure
ITU-R	International Telecommunications Union Radio Communication Sector
MAGVAR	magnetic variation
MET	meteorological
MLAT	multilateration
NAT	North Atlantic Region
NAT SPG	North Atlantic Systems Planning Group
OLS	obstacle limitation surfaces
OPD	optimized profile descents
OPMET	operational meteorological
PANS	Procedures for Air Navigation Services
PBN	performance-based navigation
PIRGs	planning and implementation regional groups
RA	Resolution Advisory
RNAV	area navigation

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RNP	required navigation performance
RNP AR	required navigation performance authorization required
RNP 2	required navigation performance 2
RPA	remotely piloted aircraft
RPAS	remotely piloted aircraft system
RTA	required time of arrival
RVSM	reduced vertical separation minima
SARPs	Standards and Recommended Practices
SBAS	satellite-based augmentation systems
SIDs	standard instrument departures
SMS	safety management
SSP	State safety programme
STARs	standard terminal arrival routes
STCA	short-term conflict alert
SUPPs	Regional Supplementary Procedures
SWIM	system-wide information management
TBO	trajectory-based operations
TMA	terminal control area
UAS	unmanned aircraft systems
VDL	VHF digital link
VHF	very high frequency (30 to 300 MHz)
VSAT	very small aperture terminal
WRC	World Radiocommunication Conference
WVSS	wake vortex flight safety system
WXXM	weather information exchange model
4D TRAD	4D trajectory-based operations

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