

ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

FUEL
PRICES

LIBERALIZATION

THE CHALLENGE OF ECONOMIC SUSTAINABILITY

ECONOMIC
CYCLES

TAXES
AND CHARGES

INFRASTRUCTURE
FINANCING

ALSO IN THIS ISSUE

TOWARDS GLOBAL CONSENSUS ON SECURITY
WHERE ARE THE WORLD'S AIRCRAFT?



EU Standard 2
Certified

EMA series

Bottle and Liquid Scanner

NSNs: 6665-151805235 / 6665-151805236



Examples of bottles that can be screened with EMA

- Accurate and quick Inspection of sealed and unsealed bottles
- Clear "OK/Attention" inspection result
- Automatic Analysis of sealed containers in ~ 5 seconds
- Standard 2 Certified according to ECAC performance requirements for Type A LEDs (*Liquid Explosive Detection Systems*)
- Standard 2 Certified according to ECAC performance requirements for Type B LEDs
- Proven operational efficiency in real applications
- Compact size and ergonomic design



THE ICAO JOURNAL
VOLUME 67, NUMBER 3, 2012

Editorial
ICAO Communications Unit
Tel: +1 (514) 954-8220
www.icao.int
www.youtube.com/icaovideo
twitter.com/icaopress

Bang Marketing
Stéphanie Kennan
Tel: +1 (514) 849-2264
E-mail: info@bang-marketing.com
Website: www.bang-marketing.com

Advertising
FCM Communications Inc.
Yves Allard
Tel: +1 (450) 677-3535
Fax: +1 (450) 677-4445
E-mail: info@fcmcommunications.ca

Submissions
The Journal encourages submissions from interested individuals, organizations and States wishing to share updates, perspectives or analysis related to global civil aviation.

Subscriptions and single copies
Yearly subscription (six issues per year) US \$40.
Single copies available for US \$10. For subscription and sales information please contact the ICAO Document Sales Unit,
Tel: +1 (514) 954-8022
E-mail: sales@icao.int

Published in Montréal, Canada. ISSN 00188778.

The information published in the ICAO Journal was correct at time of printing. The opinions expressed are those of the authors alone and do not necessarily reflect the opinions of ICAO or its Member States. Reproduction of articles in the ICAO Journal is encouraged. The ICAO Journal must be credited in any reproduction.

Printed by ICAO

Contents

4

Message from the President

Steps to ensure the financial health of the industry are essential in order to reap the enormous societal benefits that air transport consistently delivers.

6

Cover Story: The Quest for Economic Sustainability

Tae Hoon Oum, President of the Air Transport Research Society (ATRS) and UPS Chair Professor of the Sauder School of Business, University of British Columbia, discusses the key issues which must be addressed for the industry to achieve economic sustainability.

10

Follow the Fleet

Currently, more than two thirds of all commercial aircraft are registered either in North America or Europe. How will growth affect the geographical distribution of the world's aircraft in the next 20 years?

12

On the Security Agenda

Following a series of consensus-building regional conferences, the stage is set for a global high-level security conference to be held at ICAO Headquarters in Montréal in September. What can we expect?

16

ICAO Calendar of Key Events 2012-2013

18

New Rules for Remotely Piloted Aircraft Systems

ICAO has finalized Amendments regarding the operation and categorization of remotely piloted aircraft systems (RPAS) signaling an important milestone in the incorporation of remotely piloted aircraft systems into the comprehensive international aviation regulatory framework.

20

ICAO News in Brief

24

Forum: the 'last word' on financial sustainability

Vijay Poonoosamy (Mauritius), Vice President, International & Public Affairs of Etihad Airways and Chair of the IATA Industry Affairs Committee, was the moderator of the "Last Word Panel" at the April 2012 ICAO Air Transport Symposium. He reflects on the challenge of financial sustainability.

26

TECHNICAL PERSPECTIVE

SACCSA: An important step towards the implementation of the satellite-based augmentation system (SBAS) in Caribbean/South America (CAR/SAM) Regions

Please note: Technical perspectives published in this Journal are special advertising features of the ICAO Journal and the International Civil Aviation Organization does not assume any responsibility or liability for the content therein or any consequences of whatsoever nature arising therefrom. While ICAO makes every effort to ensure the accuracy of the material of these profiles, the advertiser is solely responsible for the content. Information contained therein does not necessarily represent or reflect the views, opinions and policies of the International Civil Aviation Organization.



ICAO Council Information accurate at time of printing

President: Mr. R. Kobeh González (Mexico)

Argentina	Mr. J. Gelso	Malaysia	Mr. Y.H. Lim
Australia	Ms. K. Macaulay	Mexico	Mr. D. Méndez Mayora
Belgium	Mr. G. Robert	Morocco	Mr. A. Boulmane
Brazil	Mr. J. D'Escragnolle Taunay Filho	Nigeria	Dr. O.B. Aliu
Burkina Faso	Mr. M. Dieguimde	Paraguay	Mrs. A. Torres de Rodríguez
Cameroon	Mr. E. Zoa Etundi	Peru	Mrs. L. Trindade de Buitrón
Canada	Mr. M. Allen	Republic of Korea	Mr. D. Choi
China	Mr. T. Ma	Russian Federation	Mr. A. A. Novgorodov
Colombia	Mrs. G. Rueda de Higuera	Saudi Arabia	Mr. T. M. B. Kabli
Cuba	Mr. J. F. Castillo de la Paz	Singapore	Mr. T. C. Ng
Denmark	Mr. K. L. Larsen	Slovenia	Mr. A. Krapež
Egypt	Mr. M. T. Elzanaty	South Africa	Mr. L. Mabaso
France	Mr. M. Wachenheim	Spain	Mr. V. M. Aguado
Germany	Mr. U. Schwierczinski	Swaziland	Mr. D. Litchfield
Guatemala	Mr. H. A. Rosales Salaverría	Uganda	Mr. J. W. Kabbs Twijuke
India	Mr. A. Mishra	United Arab Emirates	Ms. A. Al Hamili
Italy		United Kingdom	Mr. M. Rodmell
Japan	Mr. T. Koda	United States	Mr. D. Woerth

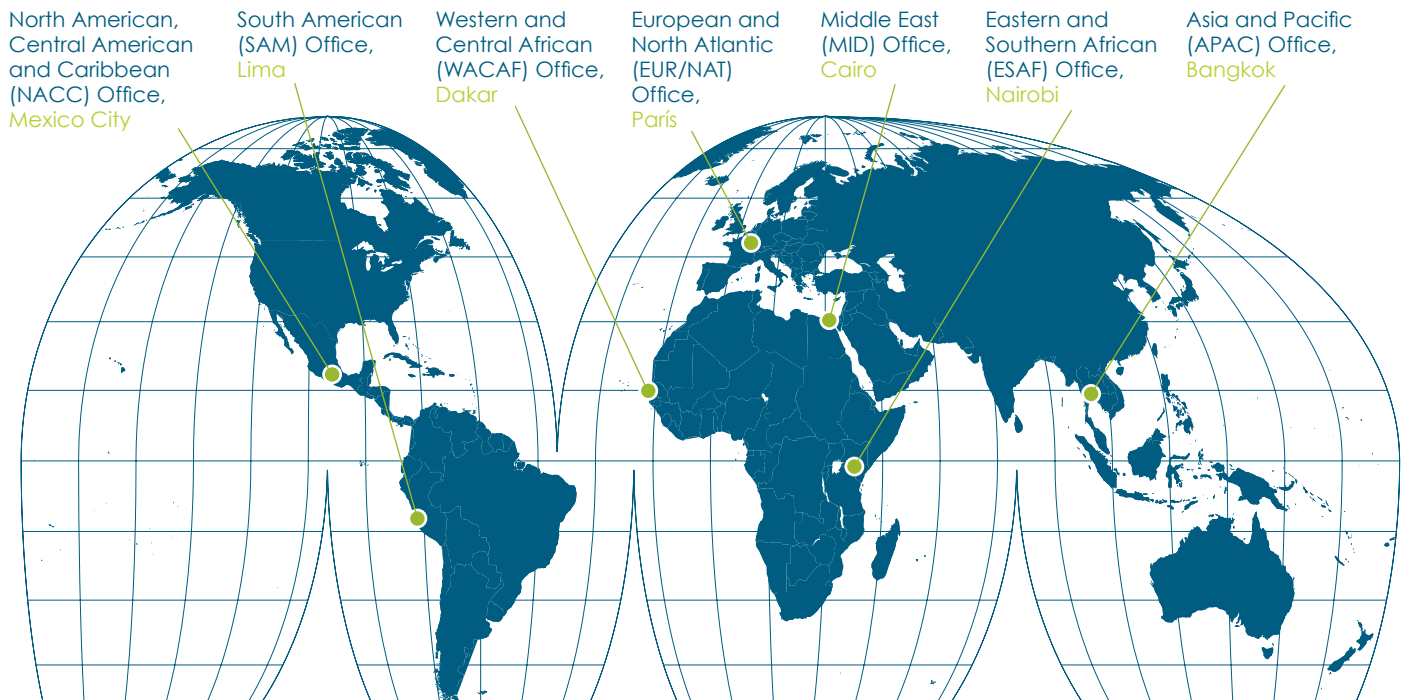
ICAO Air Navigation Commission (ANC) Information accurate at time of printing

President: Mr. Christian Schleifer Heingärtner

Members of the Air Navigation Commission are nominated by Contracting States and appointed by the Council. They act in their personal expert capacity and not as representatives of their nominations.

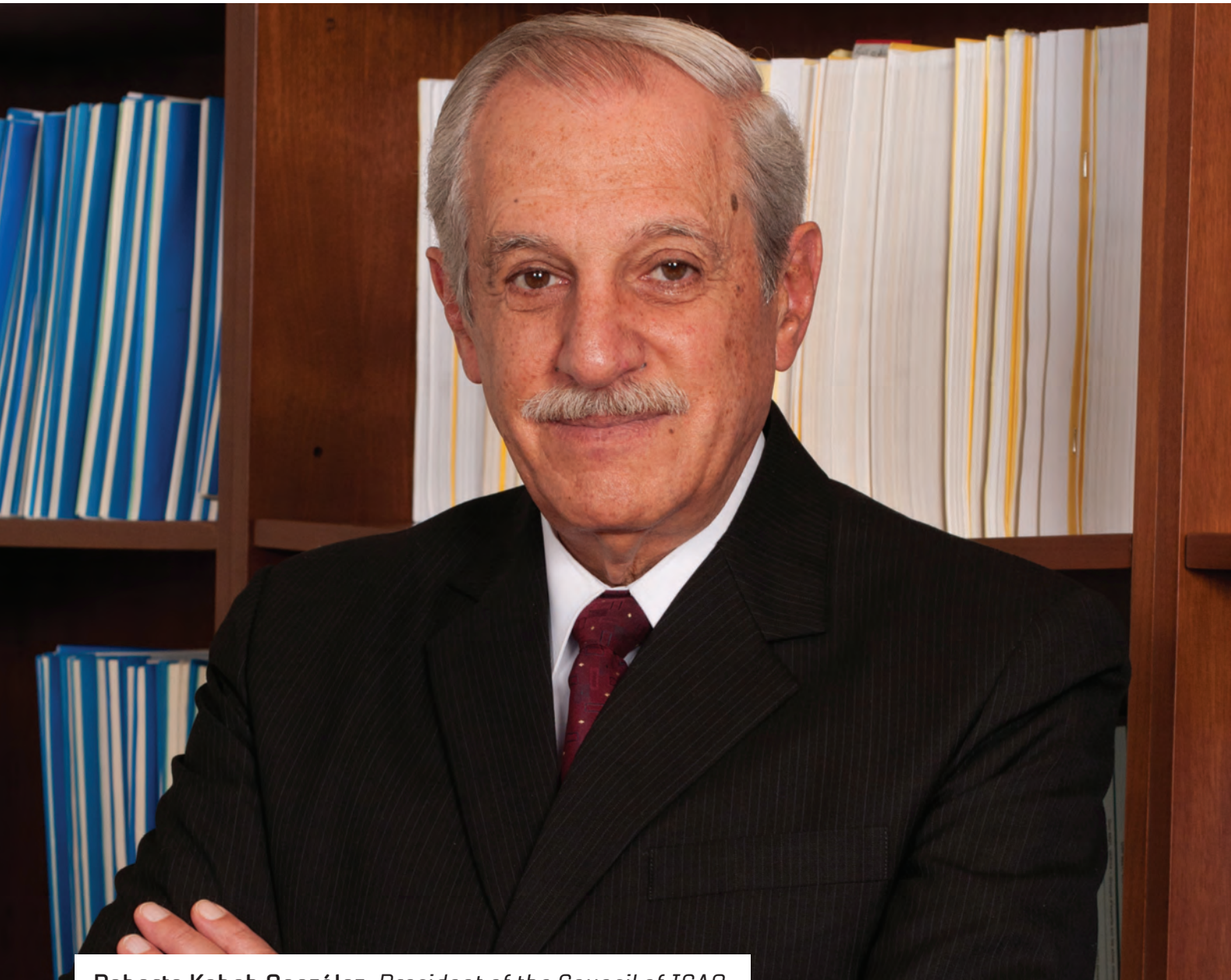
Mr. A.H. Alaoui	Mr. M.G. Fernando	Mr. A.A. Korsakov	Mr. D. Umezawa
Mr. S.C.M. Allotey	Mr. P.D. Fleming	Mr. R. Monning	Mr. S. Vuokila
Mr. D.C. Behrens	Mr. R.O. González	Mr. H. Park	Mr. F. Zizi
Mr. M.A. Costa Junior	Mr. M. Halidou	Mr. F. Tai	
Mr. J. I. Dow	Mr. J. Herrero	Mr. A.H. Tiede	

ICAO's Global Presence




Leadership and Vision in Global Civil Aviation





Roberto Kobeh González, *President of the Council of ICAO*

THE FINANCIAL QUESTION

 The sustainable development of air transport presupposes that we achieve and maintain the highest levels of safety, security, environmental protection and economic viability.

Today, global air transport is arguably as safe and secure as ever. We have considerably reduced the impact of aviation on the environment and we are implementing strategies to maintain our remarkable track record as we prepare for unprecedented growth in the coming decades.

Collectively, we must bring the same focus to ensuring the financial health of the industry, without which we cannot realistically expect to keep enjoying the enormous societal benefits that air transport consistently delivers.

Liberalizing the industry is one way to achieve this objective. Countless studies confirm that improved competition has a positive net effect on air transport efficiency and availability where it is applied, ultimately benefiting the travelling public and society as a whole.

At the same time, safeguards remain essential given varying levels of development of civil aviation in Member States as well as differences in competitive strength of their airlines, particularly for developing countries.

As the operating environment becomes more market-driven, competition among carriers increases and can lead to greater concentration in some markets. The possibility exists of abuse of control by the dominant party. In some cases, the traditional treatment of competition under the bilateral system has become at odds with the current competition policy objective based on fairness and equality of opportunity.

Ownership and control restrictions are obviously complex international issues. The air services agreements governing the operation of international air services between States use “national ownership and control” as the conditions for airline designation and authorization. For decades, this “nationality clause” has been present in the majority of bilateral agreements.

It is also, however, a national issue as the nationality requirement reflects domestic legislation, rules on national enterprises and foreign investments, which set statutory limits for foreign ownership.

Interests differ among stakeholders. Governments may want the commercial rights they negotiated to be exercised by their own airlines and ensure that the nation receives the resulting economic benefits. There are airlines that want to “do business

“to generate consensus on concrete and innovative air transport policy changes that will ensure the long-term sustainability of the global air transport industry”

as other industries”, with greater freedom to access foreign capital and management expertise. And workforces strive to protect labour standards and rights, as well as job security.

Taxation can complicate the debate. An increasing number of States impose levies on air transport service providers and users. The proliferation of these taxes and levies raises serious concerns from both States and industry with regard to their impact on air transport development.

With its report on the ICAO Air Transport Symposium held this April, this timely edition of the Journal sheds light on these and other critical sustainability issues, as a prelude to ICAO’s Sixth Worldwide Air Transport Conference in March 2013.

This will be a unique venue to generate consensus on concrete and innovative air transport policy changes that will ensure the long-term sustainability of the global air transport industry. I look forward to welcoming you there. ■

“improved competition has a positive net effect on air transport efficiency and availability where it is applied”




ABOUT TAE HOON OUM

Dr. Tae Oum is the UPS Foundation Chair Professor at Sauder School of Business, University of British Columbia, and the President of the Air Transport Research Society (ATRS). He serves on Editorial Boards of 12 international journals on transport/logistics and economics. His research and teaching interests are in the areas of economics, management and policy analysis in transport/logistics sectors.

He has authored/co-authored 35 books, over 110 journal papers and numerous reports for international organizations including World Bank, OECD, International Transport Forum, APEC and for various government agencies, regulatory commissions and major corporations (Canada, United States, UK, Netherlands, Japan, Korea, Australia, New Zealand, Singapore). He has delivered over 300 keynote addresses, invited speeches/seminars and presentations.

HOW TO SURVIVE AND THRIVE

Air Transport Research Society President Tae Hoon Oum cites sustainability over economic cycles & infrastructure financing as key issues

 The quest for economic sustainability in the air transport industry will require, among other things, a better understanding of the economic cycles which have traditionally robbed the industry of profitability according to Tae Hoon Oum, President of the Air Transport Research Society (ATRS) and UPS Chair Professor of the Sauder School of Business, University of British Columbia.

Oum was a speaker and moderator at the ICAO Air Transport Symposium held in April in partnership with the ATRS. In a wide-ranging interview with the ICAO Journal, he pointed to a number of hot-button issues affecting sustainability including: fuel prices, liberalization/Open Skies, the impact of the European Union's Emissions Trading System (ETS), infrastructure financing and industry fees and taxes.

While the growth of the industry is generally robust, Oum argues that economic boom and bust cycles, in particular, are taking their toll on

long-term sustainability. In the US, for example, he says airlines lost \$42.4 billion in 2001-2005 and \$26.3 billion between 1968 and 2005.

"Globally, airlines lost \$8 billion in 2008 alone," said Oum. His main criticism regarding the boom-and bust cycles is the inability of airline management to learn from these events in order to better manage what is in essence a highly cyclical industry.

"In terms of sustainability, this is the number one issue for all top managers of the major airlines," he said.

BETTER RISK ANALYSIS

Oum says the solution is better risk analysis and better decision-making when it comes to factors like ordering new aircraft. He pointed to several examples dating back to the 1970s when airlines ordered large numbers of new aircraft only to find that an economic recession was just around the corner. The result? Cancelled deliveries, costly penalties and new aircraft parked in the desert.

"There has to be better risk analysis," he said. "I think this is one of the important sustainability issues for the airline industry."

Of course, there are many other factors affecting financial sustainability, including the reality of ever-fluctuating fuel prices. The industry has relatively few tools to manage this large operating cost, apart from hedging, to reduce the impact of spikes in fuel costs. With prices fluctuating between \$140 and \$40 per barrel, Oum questioned whether any fuel hedging programme can really work but, at the same time, he noted that other fuel mitigation measures – like fuel surcharge fees – were irritants for airline customers.

On the other hand, Oum said there was plenty of opportunity for the air transport sector, under the leadership of ICAO, to take an active role in addressing issues such as the European ETS legislation. Oum expressed his concern that the European Union's ETS would result in a fractious and fragmented system of usage charges by different governments and jurisdictions so that airlines may find themselves in a system where they might be charged double or triple as they operate in different jurisdictions.

MULTILATERAL VS. BILATERAL

"It should become a unified global system and that is what many air transport industry groups want," he said. In that context, Oum urged ICAO to continue working towards a global solution. One of the actions of the ICAO Council has been to invite the EU to improve collaboration with the whole international community in order to find a common solution to reduce aviation emissions.

TAE OUM'S TOP FIVE SUSTAINABILITY ISSUES FOR 2012

1. Emissions Trading System (ETS) and related issues
2. Sustainability of airlines over economic cycles
3. Multilateral liberalization/global open skies
4. Airports and Air Navigation Infrastructure financing issues
5. Taxes, fees & charges

Oum also insisted that ICAO has an opportunity to play a key role in a framework of global liberalization and Open Skies. While GDP/per capita income growth accounts for two thirds of air traffic growth, Oum said that liberalization/Open Skies has been the second most important factor for air traffic growth.

"Since the Chicago Convention of 1944, every country has had to negotiate bilateral agreements to launch any airline route or commercial services," said Oum. "Instead of relying on the inefficient bilateral system, should we be looking for a more efficient, multilateral regulatory system?"

Oum pointed to other global industries – like telecom – as examples of sectors which have evolved beyond the traditional bilateral model. Here again, he envisions a larger role for ICAO in leading the way towards establishing a globally based multilateral Air Services Agreement.

"I know that countries won't give up bilateral rights but there are some aspects that can be addressed in terms of third and fourth freedom traffic, for example," he said. "ICAO could take the lead in accomplishing this over the next 10 years. I'm sure there would be a lot of support for such an initiative."

Infrastructure is another area of concern in terms of industry sustainability.

The backdrop for future infrastructure financing is bleak according to Oum. He described the current European airport and airspace congestion and capacity constraints, and the fact that the US Airport and Aviation Trust Fund (AATF) is in near bankruptcy.

TAXING SITUATION

"The Airports Council International (ACI) says the US alone needs \$80 billion for airport capacity expansion in the next five years," he said. "Without that investment, the top 25 commercial airports in the US will have serious capacity shortages and congestion problems."

Oum said that a pilot privatization programme in the US is one avenue available to the industry but, one way or another, solutions to the enormous infrastructure challenge are critical.

"What are the means by which we can deal with the enormous funding needs, including NextGen aviation system funding needs?" he said.

The infrastructure funding shortfall is in direct contrast with the proliferation of taxes, fees and charges, another factor which Oum says threatens the financial sustainability of the air transport sector.

"States, airports and airlines are increasing security fees, taxes and other money grabs including ridiculous levels of fuel surcharges, these combined charges are often higher than airfares," he said. "How do we deal with the increasing tax and fee grabs? Should we allow them to escalate and choke off air transport demand?"

Oum applauded coordinated efforts among international air transport voices, like ICAO and IATA, to highlight this issue and take a leadership position in addressing the increasingly adverse effects of air transport fees and taxes. Oum said that while finding answers to the key issues of financial sustainability is challenging, the ICAO Air Transport Symposium provided an excellent forum for sharing best practices, ideas and viewpoints.

"The joint ICAO/ATRS Symposium was the ideal type of forum to examine and debate these questions," he said. "I think the Symposium contributed significantly to shaping global aviation policy debates for achieving an efficient and sustainable air transport system." ■

ICAO IN SUPPORT OF ECONOMIC SUSTAINABILITY

The need for sustainable development of air transport services was already of paramount importance more than six decades ago when the Convention on International Civil Aviation was signed in Chicago in 1944.

The spirit of sustainability was reflected in the Preamble of the Convention which states:

"THEREFORE, the undersigned governments having agreed on certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically."

As the global forum for cooperation among its Member States and with the world aviation community, ICAO has consistently ensured the application of those 'principles and directives' by setting standards and recommended practices for the safe and orderly development of international civil aviation, developing procedures, guidance material and legal instruments to facilitate and harmonize their implementation worldwide and supporting the overall growth of a robust and sustainable air transport system.

Air travel today is the lifeline of economies on all continents, creating or supporting millions of jobs and spreading immense social benefits everywhere – from the enjoyment of leisure and cultural experience, to the rapid and effective delivery of emergency and humanitarian aid in many regions of the planet. The increased efficient and affordable access that air transport has provided to global markets helps improve living standards and foster economic growth.

A modern definition of "Sustainable Transportation" was adopted by the European Council of Ministers of Transport (ECMT, 2004) and then recommended as the best one suited in scope by the US Transportation Research Board (2008). According to this definition, a sustainable transport system:

- Allows the basic access and development needs of individuals, companies and society to be met safely and in a manner consistent with human and ecosystem health and promotes equity within and between successive generations.
- Is affordable: operates safely, securely, fairly and efficiently; offers choices of air services and supports a competitive economy as well as balanced regional development.
- Limits emissions and waste within the planet's ability to absorb them: uses renewable resources at or below their rates of generation and uses non-renewable resources at or below the rates of development of renewable substitutes, while minimizing the impact on the use of land and the generation of noise.

All the programmes and activities of ICAO are consistent with this definition, embodied in the Organization's Strategic Objectives and providing the means to achieve ICAO's perennial vision of developing a sustainable air transport system.

ATM. Better decisions deliver better outcomes.

Long-term
support?

Offering a complete range
of extended services

Safer skies?

Increasing air traffic efficiency
makes new solutions essential

Optimising
controller workloads?

Providing integrated technology enables
controllers to focus on their primary roles

Cyber security?

Ensuring data integrity protection
against cyber threats is vital

Greener ATM?

Optimising flight profiles with reduced
holding patterns, cuts carbon emission
and fuel consumption



Growing aircraft numbers make Air Traffic Management more complex. Thales TopSky-ATM Solutions help to make the skies safer, greener and more efficient. Our industry-leading initiatives, components, systems and services are integral to the SESAR programme in Europe and NextGen in the US. Thales is trusted by key ATM decision makers across 180 nations and an impressive 2 out of every 3 planes around the world land and take-off with the help of Thales.

To learn more about our TopSky-ATM Solutions,
scan the QR code or visit thalesgroup.com

THALES
Together • Smarter • Safer

Geographical aircraft distribution

2010

Currently, more than two-thirds of all commercial aircraft are registered either in North America or Europe, as shown in the graph below.

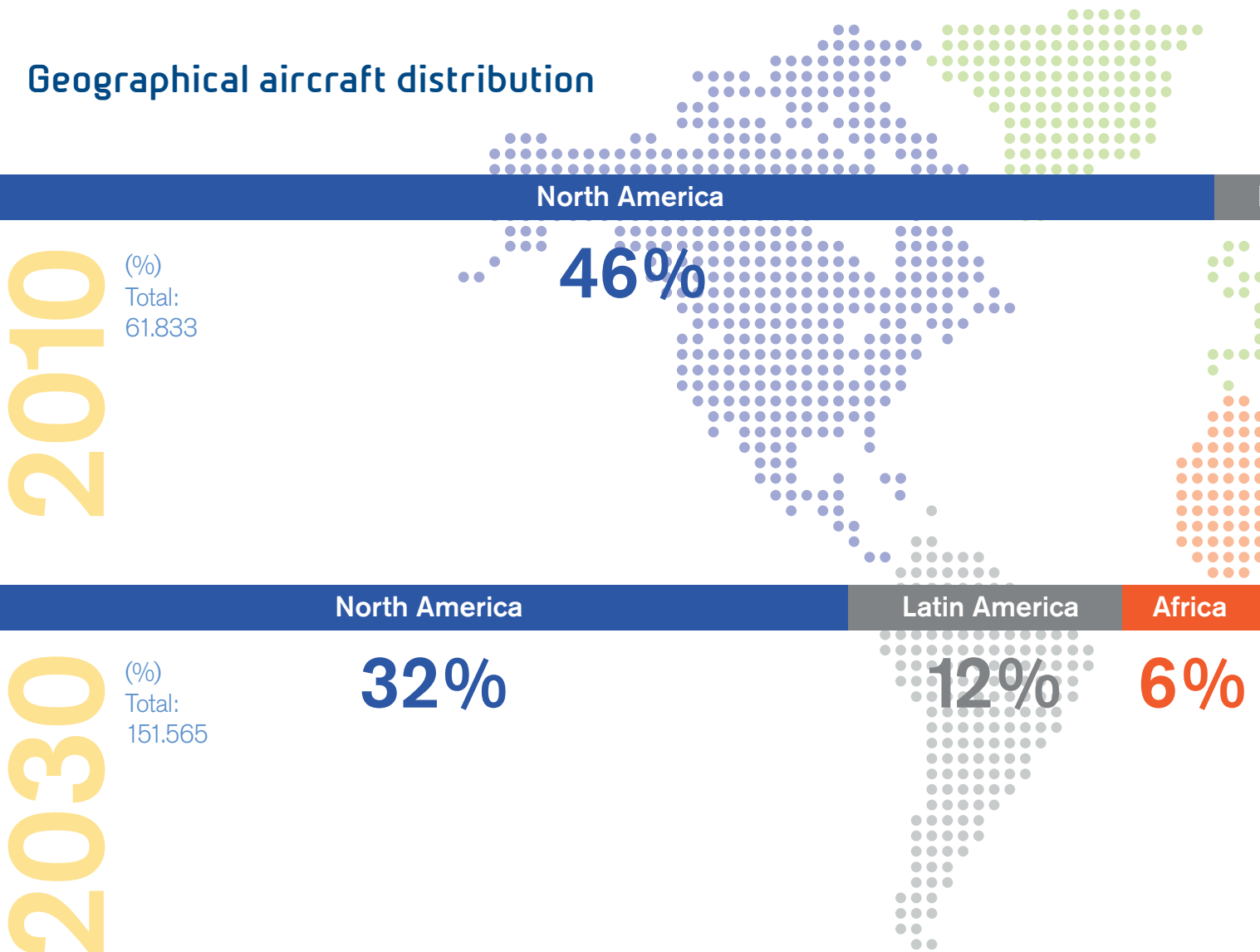
In 2010, there is a clear predominance of North America in terms of commercial fleet, since almost half of the world's aircraft (46 per cent) are registered in North America. Europe comes second with 24 per cent while Asia/Pacific comes third with 12 per cent. The combined fleets of Africa, Latin America and the Middle East represent less than 20 per cent in aggregate.

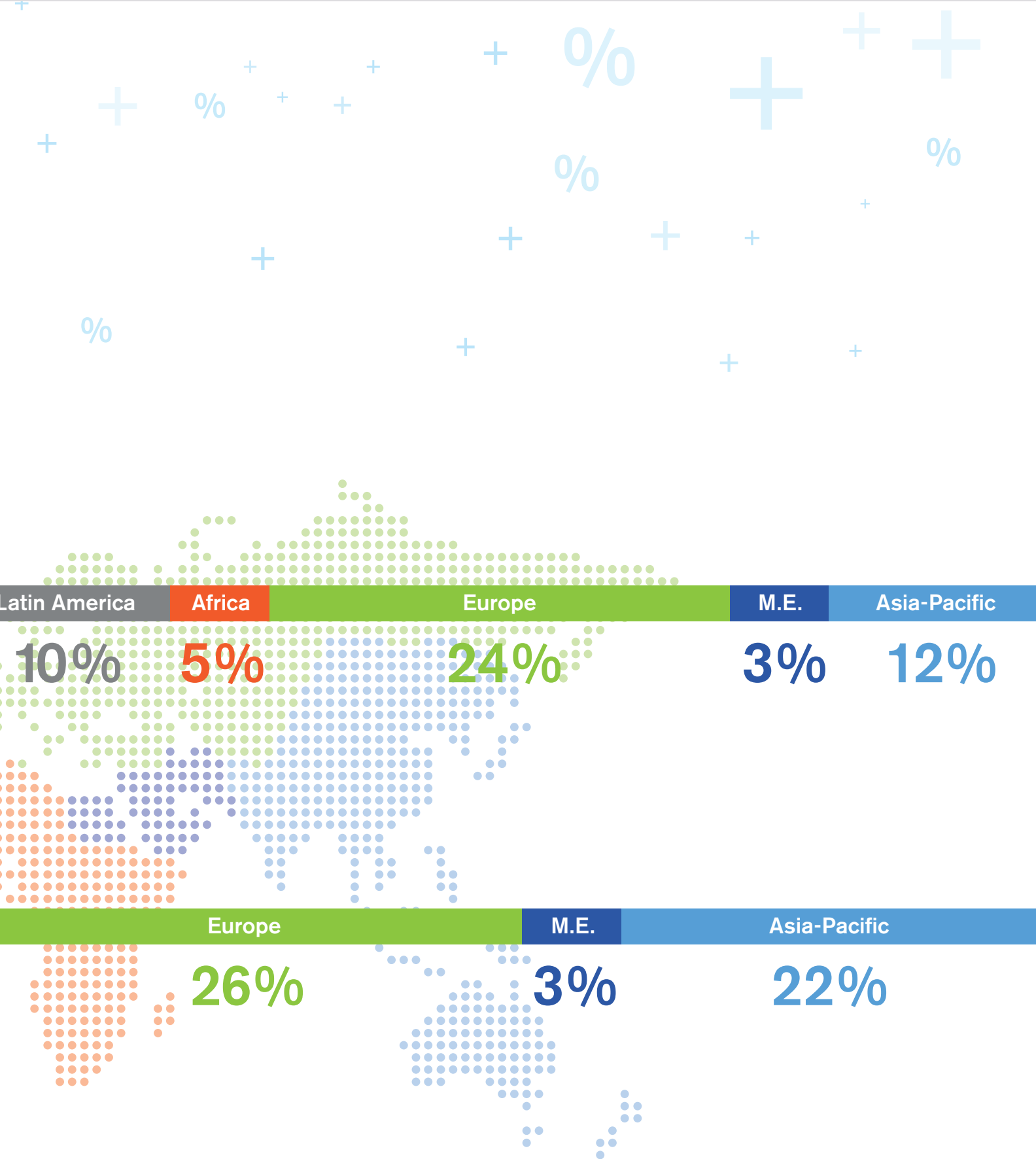
2030

From a geographical standpoint and in terms of market shares evolution, the twenty-year period under review is showing that Asia/Pacific will be the fastest growing region (12 per cent to 22 per cent) at the expense of North America's share which will decrease significantly (46 per cent to 32 per cent), while Africa, Europe, Latin America and the Middle East market shares will stay relatively stable.

The graph below shows the geographical distribution of the total commercial fleet.

Geographical aircraft distribution







ICAO HIGH-LEVEL CONFERENCE A KEY MILESTONE FOR AVIATION SECURITY



in order to demonstrate a high-level commitment to aviation security priorities (see box for list of key issues).

Important momentum towards this goal was achieved by six aviation security conferences convened for all ICAO regions in recent months. ICAO collaborated with various host States to carry out the meetings.

“We are striving to enhance aviation security through close cooperation and consensus building,” added Marriott. “This approach requires that we bring together decision-makers to share perspectives on the key challenges facing aviation security.”

The ICAO regional conferences were initiated in early 2011 to review progress in implementing the Declaration on Aviation Security adopted by the 37th Session of the ICAO Assembly. Close cooperation is considered essential in the development of new technology and processes, more effective information sharing and ongoing assistance activities.

Each conference endorsed a Joint Statement identifying collective actions required to strengthen aviation security in the region concerned, and participants agreed to report at the high-level Conference this September on progress in implementing these Joint Statements as well as the Assembly Declaration.

Raymond Benjamin, Secretary General of ICAO, identified other tangible outcomes.


“I was impressed by the level of engagement demonstrated by States, international organizations and the industry,” he said. “There is a clear determination among States to effect continuous improvement in their security systems, and an equal willingness on the part of industry and other stakeholders to work with regulators to address all issues.”

In another encouraging development, a number of conference participants identified opportunities for forming and strengthening partnerships to more effectively address security concerns.

Effective implementation of the ICAO Declaration is seen as the primary means for strengthening the global aviation security framework. ICAO is already engaged in various initiatives that help bring this implementation to fruition.

“Where the Declaration urges States to strengthen security screening procedures and use modern technologies to detect prohibited articles, we are working with national aviation security authorities and industry to develop future passenger screening checkpoint models,” explained Benjamin. “The goal is to better integrate new technologies, intelligence and specific techniques to detect both objects and persons that may pose a threat.”

The Declaration also calls for strengthened and harmonized measures and best practices for air cargo security, a huge

 Following the completion of several consensus-building regional conferences aimed at promoting implementation of the Declaration on Aviation Security adopted by ICAO in 2010, the stage is now set for a global high-level Security Conference to be held at ICAO Headquarters in Montréal in September.

“The September Conference seeks to strengthen the aviation security framework worldwide,” explained Jim Marriott, Chief of the ICAO Aviation Security (AVSEC) Branch. “The Conference will address critical issues facing regulators, the industry and other stakeholders.” ICAO is urging participation at the Ministerial level



undertaking given the vast amount of cargo handled by the world's airlines: 49 million tonnes in 2011 alone, more than half of which was carried aboard passenger aircraft.

"We have adopted new and more stringent security standards in Annex 17," said Benjamin. "The most notable is a requirement for States to establish a supply chain security process for air cargo. This measure is especially important in light of the incident of October 2010, when explosives were found in two parcels that were to be transported on cargo aircraft."

ICAO has intensified its collaboration with the World Customs Organization and other regulatory agencies to develop appropriate, new security controls for air cargo, added Benjamin. He noted that the goal is to achieve the highest level of end-to-end cargo security, without causing unnecessary delays in the movement of goods.

In the legal domain, ICAO has been instrumental in establishing new air law instruments to criminalize actions that threaten aviation security. The ICAO diplomatic conference of September 2010 in Beijing was a milestone in the development of a comprehensive legal framework for international civil aviation.

As it prepares for the high-level Conference, ICAO is developing proposals on the future of its Universal Security Audit Programme (USAP), which was established in 2002 in response to the events of 9/11. The current audit cycle, with an emphasis on aviation security oversight, will conclude in December 2013.

The Organization also seeks agreement at the high-level Conference on the confidential sharing of audit results. One possibility is to increase the information available in order to focus assistance efforts, thus facilitating more effective capacity building.

ICAO is increasing efforts to provide and coordinate assistance for States that need support.

"Terrorists seek vulnerabilities throughout the global network. They do not respect borders. All States have a vested interest in a global web of effective national and regional security regimes."

Raymond Benjamin, Secretary General of ICAO, to the *Washington International Aviation Club*, Washington, D.C., 17 January 2012.

Last year, the Organization introduced a comprehensive, new aviation security assistance strategy. Based on sound risk-management principles, the strategy focuses attention on States with the greatest need for assistance in building and maintaining a robust security framework.

Recognizing that its Regional Offices have a vital role to play, ICAO in recent months has committed new resources for related activities. In addition to existing Regional Officer – Aviation Security posts in Dakar, Nairobi, Bangkok and Mexico City, the Organization has established new posts dedicated to aviation security matters in ICAO Offices located in Paris, Lima and Cairo. These new Regional Officers will work closely with their counterparts in regional organizations.

All current and emerging issues will be up for discussion in Montréal, including a subject of prime concern for many States – the sustainability of security measures. This was one of the topics to emerge as an important theme at several regional conferences.

“By building consensus on the critical priorities and issues, the regional conferences have helped pave the way for a successful High-level Conference on Aviation Security this September,” concluded Marriott. “That is when the realities and concerns of each Region — considered collectively — will contribute to a global solution for strengthening the aviation security framework.” ■

KEY ISSUES ON THE TABLE

Delegates at the High-level Conference on Aviation Security to be held at ICAO Headquarters in Montréal this September are expected to make decisions on the following critical matters.

1. Global Risk Context Statement

The Conference will consider a proposal to regularly disseminate a Global Risk Context Statement developed by ICAO to assist States with preparing their own threat and risk assessments, identify priorities and allocate resources effectively.

2. Enhancing air cargo security

Implementation of international baseline standards can be a way to facilitate the recognition of equivalence between the aviation security regimes of different States or regions. The Conference will discuss the “cargo supply chain” and the many possible risks to the system arising from multiple supply chain participants aside from the airlines themselves, such as freight forwarders and other enterprises that engage in the shipment of cargo by air.

3. Evolution of the aviation security audit process

The Conference will be briefed on proposals for the evolution of the Universal Security Audit Programme (USAP) following 2013. The objective of these proposals is to implement audit activities and methodology under the USAP that are most appropriate for continuing to strengthen international civil aviation security, while taking into account the principles of universality and confidentiality, and linking audit results to the provision of targeted assistance and capacity-building efforts.

4. Capacity-building and technical assistance

The Conference will examine the various capacity-building and technical assistance efforts of ICAO and Member States and will discuss training as an important means of addressing challenges facing States in the implementation of Annex 17 SARPs.

5. Driving technology developments and innovation

The Conference will review technological developments in the aviation security field as a way to achieve effective and efficient aviation security and will consider efforts by Member States to implement technological solutions for the screening of liquids, aerosols and gels (LAGs), taking into account the status of rule changes in some States to gradually remove restrictions on LAGs in cabin baggage while phasing in screening technology capable of detecting liquid explosives.

6. Ensuring the sustainability of aviation security measures

Aviation security programmes need to be proactive and have to respond rapidly to changing threats and risks. At the same time, recognition of the equivalence of security measures must be given to assure air transport sustainability.

7. The role of machine readable travel documents (MRTD)

The Conference will discuss aviation security beyond its traditional focus on screening and access control and will examine the role of intelligence and identity management, inter-agency cooperation and data sharing in relation to the fight against terrorism and as an aid to security.

2012-2013 CALENDAR

KEY ICAO EVENTS

2012

High-level Conference on Aviation Security

12 – 14 September 2012

ICAO Headquarters, Montréal

Will address key issues in aviation security including: inter alia: mitigating the insider threat; cargo security; sustainability of aviation security; evolution of aviation security audits; capacity-building and technical assistance; technology and innovation; and action to be taken with respect to States with significant aviation security concerns.

Performance-based Navigation (PBN) Symposium

16 - 19 October 2012

ICAO Headquarters, Montréal

Will bring together key partners from the aviation industry including: international organizations, aircraft manufacturers, air navigation service providers, airlines, regulators, ATC system manufacturers, avionics designers, air traffic controller, pilots, the military, aeronautical information companies and instrument procedure designers to share the latest developments relating to performance-based navigation applications.



ICAO Air Transport Symposium which took place in Montréal, Canada from 18 to 20 April 2012, in partnership with the Air Transport Research Society (ATRS)

2012

Eighth Machine Readable Travel Documents (MRTD) Symposium

10 – 12 October 2012

ICAO Headquarters, Montréal

Will identify and promote implementation of MRTD best practices and lessons learned, strengthen partnership between State authorities and industry and enable sharing of information on new technology.

Twelfth Air Navigation Conference (AN-Conf/12)

19 – 30 November 2012

ICAO Headquarters, Montréal

Will foster collaborative work towards the establishment of a truly global strategy for air navigation and implementation. The objectives are to update the Global Air Navigation Plan (GANP), to set priorities and coalesce around major operational objectives to bring the global aviation community into agreement on an agenda for the next 15 years for air navigation planning and implementation; to organize and rationalize panel work programmes towards finalization of operational objectives; to provide a stimulus to air navigation implementation; and to provide States with the legal framework for funding and developing work programmes and more.

2013

38th Session of the ICAO Assembly

2013 - ICAO Headquarters, Montréal

Will establish the worldwide policy of the Organization for the next three years.

Symposium on important aviation safety and/or sustainability issues

2013 - ICAO Headquarters, Montréal

Sixth Worldwide Air Transport Conference (ATConf/6)

18 – 23 March 2013

ICAO Headquarters, Montréal

Will examine key issues in air transport regulation and liberalization and proposals on related policy guidance or regulatory arrangements with a view to developing conclusions and recommendations.

Environmental Symposium

2013 - ICAO Headquarters, Montréal

Will be dedicated to aviation environmental issues and will provide a forum to discuss, inter alia, developments emanating from the Ninth Meeting of the Committee on Aviation Environmental Protection (CAEP/9).

Fatigue Risk Management Systems (FRMS) Symposium

2013 - ICAO Headquarters, Montréal

Will build on the work of the first FRMS Symposium, held in August 2011, which looked at the benefits and challenges of FRMS and which offered an overview of current best practices. The objective is to further examine both prescriptive and non-prescriptive fatigue management regulations and implementation of FRMS.

Ninth Machine Readable Travel Documents (MRTD) Symposium


Fourth quarter 2013

ICAO Headquarters, Montréal

Will identify and promote implementation of MRTD best practices and lessons learned, strengthen partnership between State authorities and industry and enable sharing of information on new technology.

Note: this calendar highlights a selection of ICAO events. Event information is subject to change. Please consult ICAO for complete up-to-date information.

ICAO ADOPTS NEW AMENDMENTS FOR REMOTELY PILOTED AIRCRAFT SYSTEMS

 ICAO has finalized Amendments regarding the operation and categorization of remotely piloted aircraft systems (RPAS).

The unanimous adoption of these Amendments by the ICAO Council signals an important milestone in the incorporation of remotely piloted aircraft systems into the comprehensive international aviation regulatory framework overseen by ICAO.

The new Amendments apply to Annex 2 (*Rules of the Air*) and Annex 7 (*Aircraft Nationality and Registration Marks*) of the Chicago Convention. They were developed through a collaborative process undertaken by ICAO's Unmanned Aircraft Systems Study Group (UASSG). The UASSG is the largest Study Group in ICAO and features multidisciplinary participants representing 18 ICAO Member States and 11 international organizations.

"Remotely piloted aircraft are becoming very sophisticated very quickly," said Mitchell Fox, Chief of ICAO's Air Traffic

Management Section. "Their civilian and scientific applications are expanding rapidly and States from every ICAO region are now developing and employing RPA in a variety of domains."

The Chicago Convention, ratified in 1947, contains a logical but restrictive article (Article 8) that applies to "pilotless aircraft". Article 8 stipulates that aircraft flown without a pilot on board must receive "special authorization" prior to operating over another State's territory, as well as ensuring that the operation in question avoids posing a danger to civil traffic.

ICAO took Article 8 as a starting point for the new Annex Amendments that first acknowledge RPA as a classification of aircraft (Amendment 6 to Annex 7) and which, secondly, provide the important safety-related details regarding the scope and content of the special authorizations governing RPA operation over a State's territory (Amendment 43 to Annex 2).

"The Annex 2 Amendment is a major first step that provides a detailed list of what States need to look at when they are

UNDERSTANDING 'UNMANNED'

Unmanned aircraft systems are a challenging part of the ICAO work programme. While an unmanned aircraft can be seen as simply another aircraft, once it is airborne, the differences from manned aviation become apparent. Who is responsible for the safe conduct of the aircraft? How will it avoid collisions with other aircraft, terrain or obstacles? Will it broadcast its position and intentions to air traffic control or pilots in the area? If it is remotely-piloted, what means will be used to pilot it and what knowledge and skills will the pilot possess?

The list of questions raised by the differences between manned and unmanned aircraft is never-ending and pertains to every aspect of aviation. Identifying the questions to ask, describing the scenarios and how they are both similar to and different from manned aviation then developing the work programme leading to the regulatory framework is the responsibility of ICAO's Unmanned Aircraft Systems Study Group (UASSG). Some of the initial concepts that the UASSG is working on include: operational and other aspects of remotely-piloted aircraft; remote pilots and remote pilot stations; airworthiness and accidents; and terminology. Eventually, the full breadth of issues related to aerodrome operations, airspace operations, filing of flight plans and operating the flight in accordance with its approvals will be addressed.

The *Unmanned Aircraft Systems (UAS) Circular (Cir 328)* developed by the UASSG, provides an overview of UAS activities including background information for use by States in developing their regulatory frameworks. It also assists industry in understanding what goals to aim for and subjects or issues to which performance-based SARPs are to be anticipated in the future. Terminology with agreed meanings is included along with examples of solutions States have already implemented. The circular is available on the ICAO website.

considering granting an authorization for an RPAS operation," noted UASSG Secretary, Leslie Cary. "This includes Standards mandating approval of the RPA system, a certificate of airworthiness for the remotely piloted aircraft (RPA), an operator certificate and remote pilot licences."

The Annex 2 Amendment is unusual in the sense that there are no Standards in place at this time on how to approve an RPAS, assess the airworthiness of the RPA or evaluate the remote pilot qualifications. In that regard, there remains a lot of work to accomplish in determining the specific and more detailed regulatory framework that will support safe and efficient RPAS operations over the medium- and longer-term.

"Internally, ICAO is well into the exhaustive process of reviewing every Annex to the Chicago Convention to see how the introduction of RPA into the regulatory framework is going to impact the existing Standards," Fox stressed. "This is a completely new area that will require new classifications and licensing, not only for aircraft but pilots as well. ICAO will certainly be cooperating closely over the coming months with industry stakeholders, not to mention our colleagues in the various national aviation administrations worldwide that are currently looking into this issue."

The UASSG will continue defining applicable ICAO Standards as its work proceeds, primarily relating to airworthiness, remote pilot licensing and operations. It is also developing a new ICAO RPAS Manual in advance of a Global RPAS Symposium ICAO currently has slated for April 2014.

ABOUT THE UASSG

ICAO's Unmanned Aircraft Systems Study Group (UASSG) assists the ICAO Secretariat in coordinating the development of Standards and Recommended Practices (SARPs), procedures and guidance material for Remotely Piloted Aircraft Systems (RPAS), supporting their safe, secure and efficient integration into non-segregated airspace and aerodromes. It first met at ICAO Headquarters in April, 2008.

The UASSG consists of participants from 18 ICAO Member States (Austria, Australia, Brazil, Canada, China, Czech Rep., France, Germany, Italy, Netherlands, New Zealand, Norway, Russian Federation, Singapore, South Africa, Sweden, UK, USA), as well as representatives from EASA, EUROCONTROL and nine international organizations (CANSO, EUROCAE, IAOPA, ICCAIA, IFALPA, IFATCA, NATO, RTCA, and UVS International).

AIR NAVIGATION SOLUTIONS FOR

THE 21st CENTURY CHALLENGES

At GMV we put our minds and knowledge at the service of our customers to deliver the best possible solutions to meet their needs. We turn the challenges of our customers into opportunities for innovation by making them our challenges.

- GNSS technology, systems, applications and services
- Specialized know-how and highly qualified professionals
- Trading on a worldwide scale in different sectors



GMV
Isaac Newton 11 P.T.M. Tres Cantos - 28760 Madrid SPAIN
2400 Research Blvd, Ste 400 Rockville, MD, 20850 USA

www.gmv.com

gmV
INNOVATING SOLUTIONS

NEWS IN BRIEF



DEPOSITS BY POLAND

On 15 February 2012, during a brief ceremony at ICAO Headquarters, Poland deposited instruments of ratification of four Protocols of amendment to the Chicago Convention: the Protocols related to the increase in the membership in the Air Navigation Commission (1989) and the Council of ICAO (1990) and the Protocols amending the final paragraph to provide for the Arabic (1995) and Chinese (1998) authentic texts of the Convention.

Shown on the occasion are: Mr. Tadeusz Zylinski, Consul General of Poland in Montréal; and Mr. Denys Wibaux, Director, Legal Affairs and External Relations Bureau, ICAO.



From left to right: Mr Boubacar Djibo, Director, ICAO Air Transport Bureau; Mr Talal M.B. Kabli, Representative of Saudi Arabia on the Council of ICAO; H.H. Prince Turki Bin Faisal Al-Saud, Vice-President, International Organizations Affairs, General Authority of Civil Aviation (GACA).

SETTING THE STAGE FOR THE 5TH ICAO AIR SERVICES NEGOTIATION CONFERENCE (ICAN)

ICAO representatives recently visited Saudi Arabia to prepare for the 5th ICAO Air Services Negotiation Conference (ICAN) which will be held in Jeddah, 8-12 December 2012. ICAN provides States with a central meeting place to conduct air services negotiations or consultations with their partners.

By enabling each participating State to hold multiple negotiations at the same location, the Conference greatly improves the efficiency of the negotiation process. Previous conferences were held in Dubai, Istanbul, Montego Bay and Mumbai.

FRANCE AND ICAO SIGN AGREEMENT

The Agreement between ICAO and the French government concerning the terms of cooperation in civil aviation, was renewed for three years on April, 20, 2012. Mr Raymond BENJAMIN, ICAO Secretary General, and Mr Michel WACHENHEIM, Ambassador and permanent Representative of France on the ICAO Council signed the agreement.



From left to right: Mr. Roberto Kobeh González, President of the ICAO Council; Mr Raymond Benjamin, Secretary General of ICAO; Mr Michel Wachenheim, Ambassador and permanent Representative of France on the ICAO Council; Mr. Nicolas de Riviére, Directorate for UN, Human Rights and French-speaking countries in the French Foreign Ministry. Also present were: Mr. Denys Wibaux, Director, Legal Affairs and External Relations Bureau, ICAO; Mr. Farid Zizi, Member of the ICAO Air Navigation Commission and First Alternate to the French Representative on the ICAO Council; Mr. Pierre Pape, Second Alternate to the French Representative on the ICAO Council.



ASIA/PACIFIC CIVIL/MILITARY COOPERATION SEMINAR/WORKSHOP

The Asia/Pacific Civil/Military Cooperation Seminar/Workshop took place at the ICAO Asia and Pacific Regional Office (ASIA/PAC) in Bangkok, Thailand from 28 February to 1 March 2012. The event was convened by the International Civil Aviation Organization

(ICAO), in partnership with the Civil Air Navigation Services Organisation (CANSO), the European Organisation for the Safety of Air Navigation (EUROCONTROL), the International Air Transport Association (IATA), the Federal Aviation Administration (FAA) of the United States and UVS International. Seventy-three participants attended the seminar/workshop from 13 States and four international organizations.

The objectives of the event were to build on the Global Forum outcome providing States international organizations in the Asia/Pacific Region with information from Circular 330/Civil/Military Cooperation in Air Traffic Management to improve: civil/military cooperation and coordination, optimize airspace by applying the concept of flexible use of airspace in the regions, share information between civil/military authorities and to analyze the impact of modernization efforts by States.

FIRST MEETING OF THE AFRICA-INDIAN OCEAN REGIONAL AVIATION SAFETY GROUP

The first Meeting of the Africa-Indian Ocean Regional Aviation Safety Group (RASG-AFI/1) was held in Kampala, Uganda, 26 - 27 March 2012. The establishment of RASG-AFI is designed to increase awareness of regional safety issues, formalize regional mechanisms used to address them and thus facilitate coordination and support from ICAO and other partners in the AFI Region.

The RASG-AFI is also expected to monitor progress, coordinate actions among AFI States and make recommendations to ICAO on means to facilitate the implementation of the Global Aviation Safety Plan (GASP) and the associated Global Aviation Safety Roadmap (GASR) within the region in accordance with existing operational reality and the expectations of States, industry and ICAO in order to improve aviation safety in the AFI Region.

The inaugural meeting agenda focused on a number of key areas including: the definition of terms of reference and organizational structure of the RASG; the incorporation of guidelines of ICAO's Global Aviation Safety Plan (GASP); the establishment of mechanisms to measure the implementation of existing recommendations; and the identification and formulation of regional safety concerns.



Shown from left to right are: Dr. O B Aliu, Representative of Nigeria on the ICAO Council; Mr. Englebert Z. Etundi, Representative of Cameroon on the ICAO Council; Mr. Raymond Benjamin, ICAO Secretary General; Mr. Levers Mabaso, Representative of South Africa on the ICAO Council and Mr. Aboubekrine Seddigh, Directeur Général de l'Aviation civile, ANAC, Mauritanie.

MIDDLE EASTERN STATES AGREE ON STRATEGY FOR ENHANCING AVIATION SECURITY


States from across the Middle East have agreed on collective action to improve passenger and cargo security throughout the region as part of a global initiative to counter threats to civil aviation worldwide.

The meeting in Bahrain on 10/11 April 2012, marked the culmination of a series of regional conferences held in different parts of the world to build consensus in advance of the global high-level security conference to be held at ICAO Headquarters from 12 to 14 September. Representatives of 13 Member States* considered ongoing efforts to improve aviation security in light of the ICAO Declaration adopted in October 2010, and agreed on key steps required to advance the Declaration's implementation.

Kamel Ahmed Mohammed, Minister of Transportation of Bahrain, said the meeting succeeded in promoting aviation security cooperation in a critical area of the world. "States of the Middle East are determined to continuously improve their security systems in partnership with all stakeholders," he stated. "Only through such close cooperation will it be possible to further enhance civil aviation security in the region."

Joining ICAO and national civil aviation authorities at the conference were regional bodies and international organizations including: the Arab Civil Aviation Commission (ACAC), Arab Air Carriers Organization (AACO), Gulf Cooperation Council (GCC), Airports Council International (ACI) and the International Air Transport Association (IATA). Government officials from Australia, Turkey, the United Kingdom and the United States also participated.

*Algeria, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Libya, Oman, Qatar, Saudi Arabia, Sudan, the United Arab Emirates and Yemen.



“ AMPAP provided me with an opportunity for meeting, interacting, and networking with other airport professionals around the world. The programme has also equipped me with the skills to deal with various barriers in management styles, leadership concepts, languages, and cultures. ”

I chose **AMPAP**

Robinson Misitala, IAP
Managing Director
National Airports Corporation Limited
Lusaka, Zambia

Premier Sponsor



SITA

Media Partner



AMPAP Administrator



Information

www.iap.aero



FORUM

THE 'LAST WORD' ON FINANCIAL SUSTAINABILITY

As a reader of the ICAO Journal, you understand the strategic value of air transport and I therefore invite you to share this article with those whose decisions have an impact on the continued sustainability of air transport.

Aviation is one of the world's most vital resources, a strategic contributor to sustainable development and a formidable catalyst to socio-economic growth. Its global economic impact is estimated at \$2.2 trillion and it generates 56.6 direct and indirect million jobs globally.

A country's or region's competitiveness is directly related to its connectivity and more air transport simply means more benefits for customers and the wider economy and more jobs. The December 2006 study by InterVistas on "Measuring the Economic Rate of Return on Investment in Aviation" estimated that each 10 per cent increase in international air services led to a .07 per cent increase in GDP.

Moreover, the June 2006 InterVistas Report on the Economic Impact of Air Service Liberalization found that traffic growth subsequent to air transport liberalization typically averaged

“Governments should not clip the wings of an industry that makes economies take off.”

between 12 per cent and 35 per cent and reached almost 100 per cent in some cases. That report also found that restrictive air services agreements stifle air travel, tourism and business and, consequently, economic growth and job creation, whilst the June 2009 InterVistas Report found that limiting aviation's growth by 1 per cent would cost six million aviation-related jobs and cut the industry's GDP contribution by US \$600 billion.

A more dramatic case for aviation was made in 2010 when Iceland's volcanic ash led to the closure of 300 European airports for five days, over 100,000 cancelled flights, more than 10 million stranded passengers and \$5 billion in lost GDP worldwide. The case for liberalizing air transport is most compelling for most, but sadly not for all.

Some still focus on the narrow interests of a flag carrier rather than promote the wider national interest.

Some believe that air transport liberalization should be put on hold because of the current economic crisis.

By doing so, some may protect a few ailing airlines for a short while but will definitely deprive most stakeholders of the multiple benefits of air transport liberalization for a very long time. Moreover, some governments undermine their own economies by misusing the 'green' banner to simply tax airlines and thereby limit both their contributions to socio-economic growth and their ability to invest in greener technology and energy.

It is simply senseless for countries desperately trying to stimulate economic growth to stifle the airlines which are the engines of growth. In these exceptionally difficult financial times, governments should not clip the wings of an industry that makes economies take off.

“A country’s or region’s competitiveness is directly related to its connectivity and more air transport simply means more benefits for customers and the wider economy and more jobs.”

Governments should instead undo and refrain from doing anything that inhibits travel and tourism by suspending all ill-advised national or regional policies, laws, regulations, schemes, taxes, fees, charges and restrictions on travel and tourism.

Governments should also do what it takes to boost a more competitive travel and tourism sector by developing a strategic and holistic approach to aviation.

This means recognizing that:

1. ICAO is the only forum for elaborating global and effective solutions for a safe, secure, viable, efficient, cost-effective and hence sustainable air transport system;
2. ICAO’s most valuable work on safety, security and air navigation relates to and is dependent on air transport;
3. Consistent, universal implementation of ICAO safety and security standards is an absolute necessity;
4. The ICAO 12th Air Navigation Conference (ANConf/12) must fast track implementation of the long awaited global air navigation systems and deal with lack of efficient and cost-effective aviation infrastructures on the ground;
5. The unavailability of cost effective and sustainable biofuels as well as national and regional environment schemes dealing with international air transport are serious impediments;
6. ICAO must diligently agree on a global basket of measures to deal with the impact of air transport on climate change;

7. ICAO and the 6th ICAO Worldwide Air Transport Conference (ATConf/6) should consider developing an annex to the Chicago Convention on the sustainability of air transport.

But we must also recognize that to achieve any of the foregoing requires a worldwide culture of communication and cooperation because as States and ICAO, as air navigation service providers and CANSO, as airlines and IATA, as airports and ACI, as consumers, as employees, as aircraft and engine manufacturers and as all air transport academics we need each other and we depend on each other.

We are, and we will remain, a community of linked interests and together we will make a formidable difference. ■



ABOUT THE AUTHOR

Vijay Poonoosamy (Mauritius) is the Vice President International & Public Affairs of Etihad Airways and Chair of the IATA Industry Affairs Committee. He chaired the 4th ICAO Worldwide Air Transport Conference and

moderated the ICAN2009, 2010 and 2011 Seminars. He was the moderator of the "Last Word Panel" at the April 2012 ICAO Air Transport Symposium.

SACCSA:

An important step towards the implementation of the satellite-based augmentation system (SBAS) in Caribbean/South America (CAR/SAM) Regions



ABOUT ANA CEZÓN

Ana Cezón has a M.Sc. in Physics and has been working at GMV (Spain) since 1999 in the GNSS Navigation Area, responsible for the "GNSS exportation and system support" area. She is the project manager of the SACCSA project. Ana Cezón has 12 years experience in GNSS and has been active in programmes related to Latin America since 2006.

✈ The particularities of the CAR/SAM Regions, for example the behavior of the ionosphere, impose limitations on the performances of SBAS solutions in comparison with other regions of the world. The SACCSA project objective is to study the improvement of the air navigation environment in the Caribbean and South America (CAR/SAM) Regions with a SBAS solution.

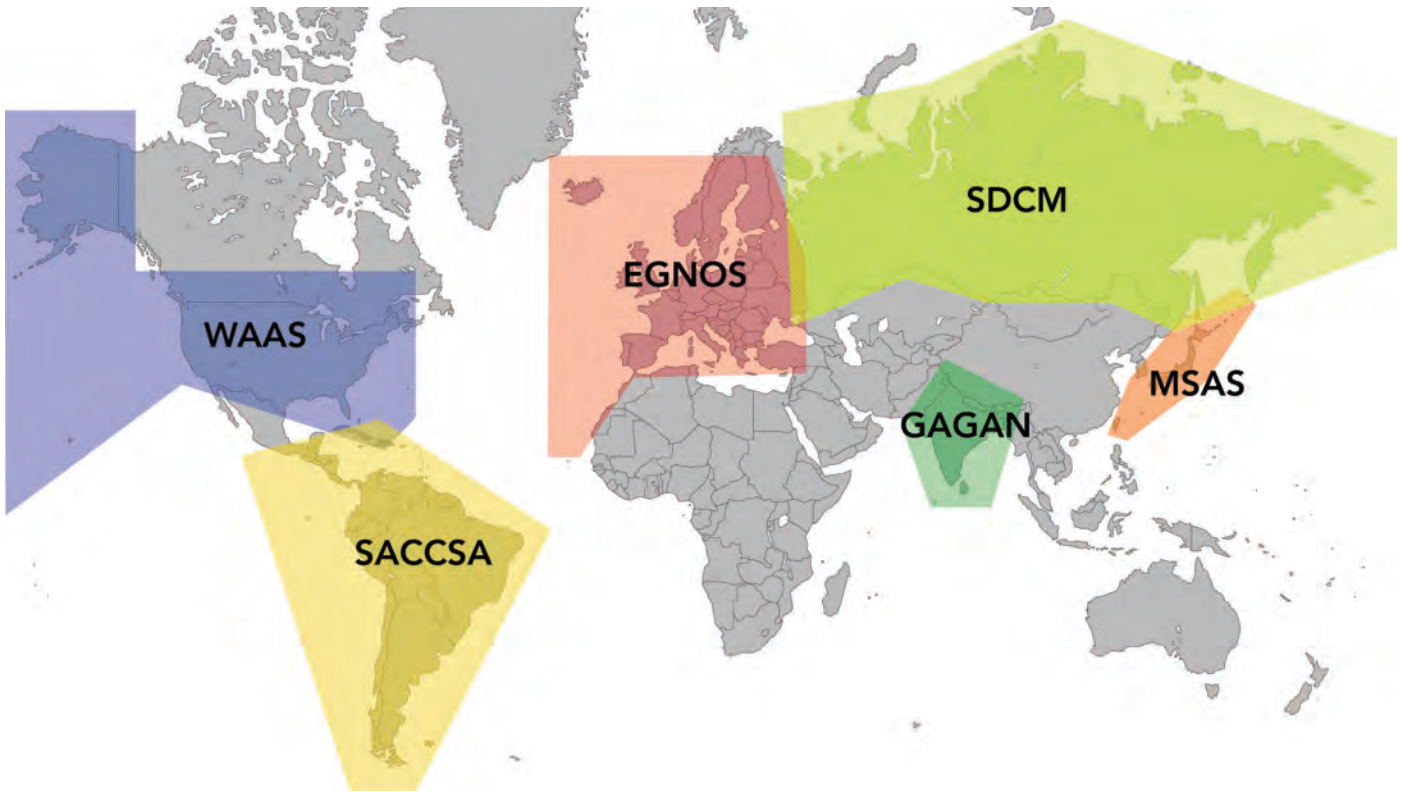
The current picture of satellite navigation systems includes global (GPS, GLONASS, Galileo), regional (SBAS, QZSS, Compass, IRNSS) and local systems (GBAS, hybrid systems combining GNSS and other sensors). The use of GNSS for safety critical applications and, consequently, for the implementation of the PBN (Performance Based Navigation) requires given levels of confidence on the positioning obtained by the user equipment. This is possible by complementing the core GNSS signals with other systems or techniques to produce a solution with the needed level of integrity.

The analysis of the current trends observed in the navigation community suggests that, for the coming years, the GNSS integrity solutions may rely on SBAS, GBAS, RAIM or new techniques including integration with other sensors. In this global GNSS picture, SBASs appear as very promising solutions to regionally augment the GNSS constellations to provide increased accuracy with integrity. WAAS, EGNOS and MSAS are operational SBAS systems. Additionally, there are other SBAS systems that are currently under development (as for example SDCM in Russia and GAGAN in India) or under study as it is the case of SACCSA (Solución de Aumentación para el Caribe, Centro y Sudamérica/ Augmentation Solution for the CAR/SAM) program in Latin-America.

In the aviation community, SBAS already enjoy recognition at the regulatory level and are considered as a reference navigation aid. Recently, ICAO developed the PBN concept and established an international schedule for APV (Approach Procedure with Vertical Guidance) at all instrument runway ends either as the primary approach or as a back-up for precision approaches by 2016, with intermediate milestones of 30% by 2010, and 70% by 2014. Most countries are producing their PBN implementation plans to meet ICAO recommendations and the use of the SBAS technology seems to be one of the most adequate solutions.

EDITOR'S NOTE

SACCSA (The Augmentation Solution for the Caribbean, Central America and South America) is a project with the goal of planning the development of the technical, financial and operational aspects of a preoperational satellite-based augmentation system (SBAS) for the Caribbean/South America (CAR/SAM) Regions.



The next figure shows the current picture of SBAS programs in the world including SACCSA. Additional regions, not presented in the picture, have shown interest on SBAS technology at different levels as for example: China, Africa, MID, Australia, Korea, Malaysia, etc

SACCSA PROJECT

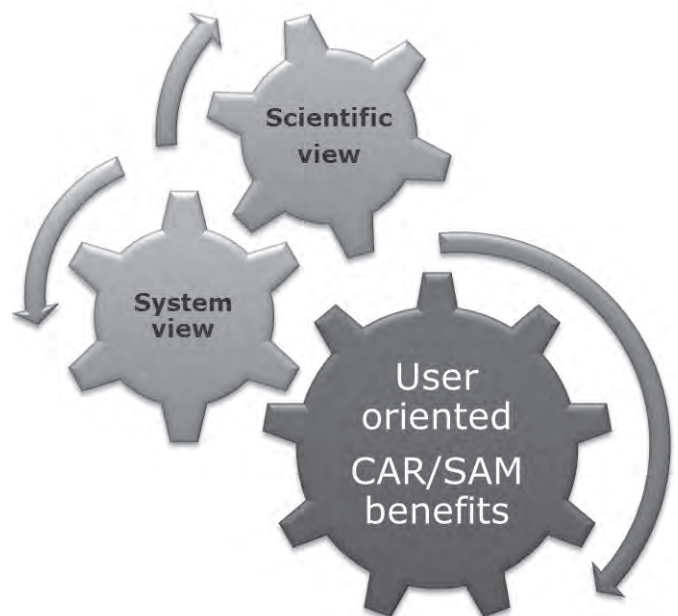
SACCSA is an ICAO RLA project (RLA/03/902) coordinated by ICAO and founded by the participants/member States/ International Organizations of the SACCSA Project. The main objective of the SACCSA project is to study the improvement of air navigation in CAR/SAM Regions with a SBAS solution, so a technical feasibility analysis is performed, paying particular attention to the ionosphere, integrity and safety aspects.

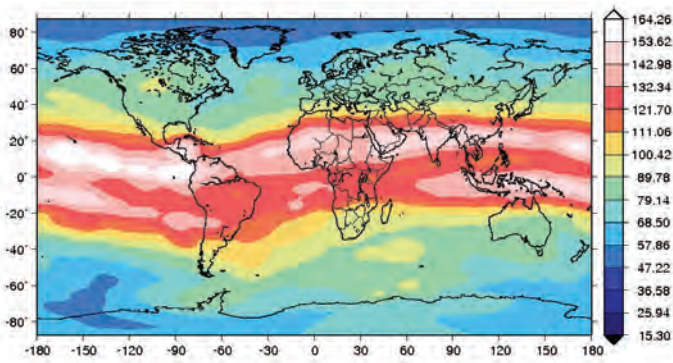
To understand the current phase of the SACCSA programme and to have a complete view, it is important to know the previous phases of the SACCSA project and to clearly identify the context of the Project within CAR/SAM Regions and within the related activities implemented in the Region.

The programme began in 2003 with EDISA-EGNOS Demonstrations in South America, which aimed at a series of tests and demonstrations of the signal based on European system EGNOS, extended to the CAR/SAM regions. As part of the projects RLA/03/902 and project RLA/00/009, Regional GNSS augmentation test it was concluded that neither the existing the European system EGNOS nor the American WAAS could feasibly be extended to the CAR/SAM Regions (13/84 GREPECAS conclusion), mainly due to

the Regions’ particular characteristics. This imposes differential elements to be considered in a different way than in other Regions.

From this point in SACCSA programme, SACCSA was defined as a system independent of other SBAS systems but interoperable with them.





their needs, the environment (not only from a technical point of view), and then to identify potential solutions that could provide valuable benefits. The solutions were proposed with an innovative and open-minded vision and seeing the problem from a user-oriented perspective.

The next figure, obtained in SACCSA project, represents the worldwide maximum ionosphere values (TECUs) for the previous solar cycle:

- Regions marked in white and red are clear equatorial ionospheric regions. GNSS systems (SBAS and GBAS) designed for medium latitudes will have important limitations. Adaptation to the ionosphere in equatorial regions is mandatory and technical feasibility will depend on that adaptation.
- Regions labeled in orange and yellow could have problems in high solar activity periods for GNSS systems (SBAS and GBAS)
- Regions marked in green and blue are considered medium latitude regions and not expected to have limitations in GNSS systems (SBAS and GBAS) related to the ionosphere (except for iono storms).

SBAS DEMONSTRATION: FIRST SACCSA TEST SIGNAL BROADCAST

Several Regional Coordination Meetings (RCCs) were held during the execution of the project. The Seventh Meeting of the Coordination Committee (RCC/7), held in San Carlos de Bariloche, Argentina was of special interest as an important SBAS demonstration took place and presented to the following States and international organizations: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Guatemala, Panama, Spain, Venezuela, COCESNA, IFALPA and ICAO. For the first time in the CAR/SAM Regions a real GEO satellite SACCSA test signal was received. This SBAS signal in test mode was broadcast from 14 to 15 October 2010.

The objective of the second phase of the Project RLA/03/902 (SACCSAII) was to: “develop and plan the technical, financial, operational and institutional aspects of an SBAS system for the CAR/SAM Regions” as identified in the ATM/CNS/SG meeting (Rio de Janeiro, Brazil, March 2004).

Due to the special conditions in the CAR/SAM Regions, the high cost of the SBAS system and the difficulties linked to the system’s development, it was decided to launch a third phase of the project, which is currently running and expected to finish during 2012/2013.

More information about SACCSA can be obtained from the SACCSA website – <http://www.rlasaccsa.com>

From the technical analysis performed so far it is clear that the main critical problem for the SBAS feasibility is the behavior of the ionosphere that imposes important limitations to GNSS. A great effort has been devoted to deeply study the problematic of GNSS on the equatorial region and to particularize the results to SBAS systems evolving the iono models from the ones applied to medium latitude regions. From a general point of view, the main strategy was first to analyze the problem, understand the current situation of the CAR/SAM Regions,



Seventh Meeting of the Regional Coordination Committee (RCC/7) closing meeting held in San Carlos de Bariloche Argentina. States and International organizations: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Guatemala, Panama, Spain, Venezuela, COCESNA, IFALPA and ICAO. Consortium: GMV, INDRA, GESA and CENAT.

THE CIVIL AVIATION AUTHORITY OF SINGAPORE AND THE SINGAPORE AVIATION ACADEMY

WARMLY WELCOME YOU TO SINGAPORE FOR THE

1ST



TRAINAIR PLUS

GLOBAL SYMPOSIUM
25 to 28 September 2012

“ HOW TO PREPARE TOMORROW’S AVIATION WORKFORCE
WITH TODAY’S TRAINING TOOLS ”

This first ICAO Global Training Symposium is a unique opportunity that will allow you to exchange views with ICAO, Regional Organizations, States, training organizations, operators and industry on best practices and experiences in aviation training.



Photos: © iStock.com

COMPLIMENTARY
REGISTRATION

Hosted by:



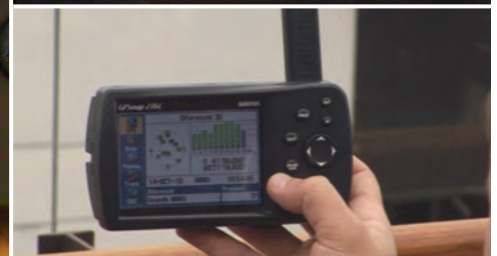
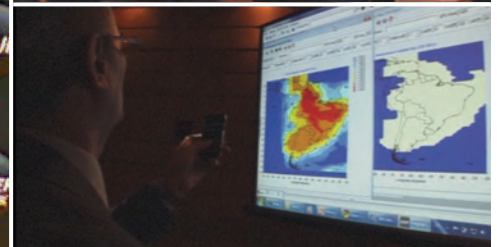
SINGAPORE
AVIATION
ACADEMY

Visit:

www.saa.com.sg
to register



magicSBAS web page: <http://www.gmv.com/en/space/magicSBAS/index.html>



The success of the demonstration was possible thanks to the collaboration between GMV and Inmarsat. GMV provided its new SBAS processing center, *magicSBAS* which accepts real-time data from any place in the world and computes SBAS messages (SARPS compliant); while Inmarsat provided the Ground Unlink Station located in Fucino (Italy) and the space capacity—the navigation transponder on the Inmarsat-3F4 positioned (PRN 122) over the Americas continent.

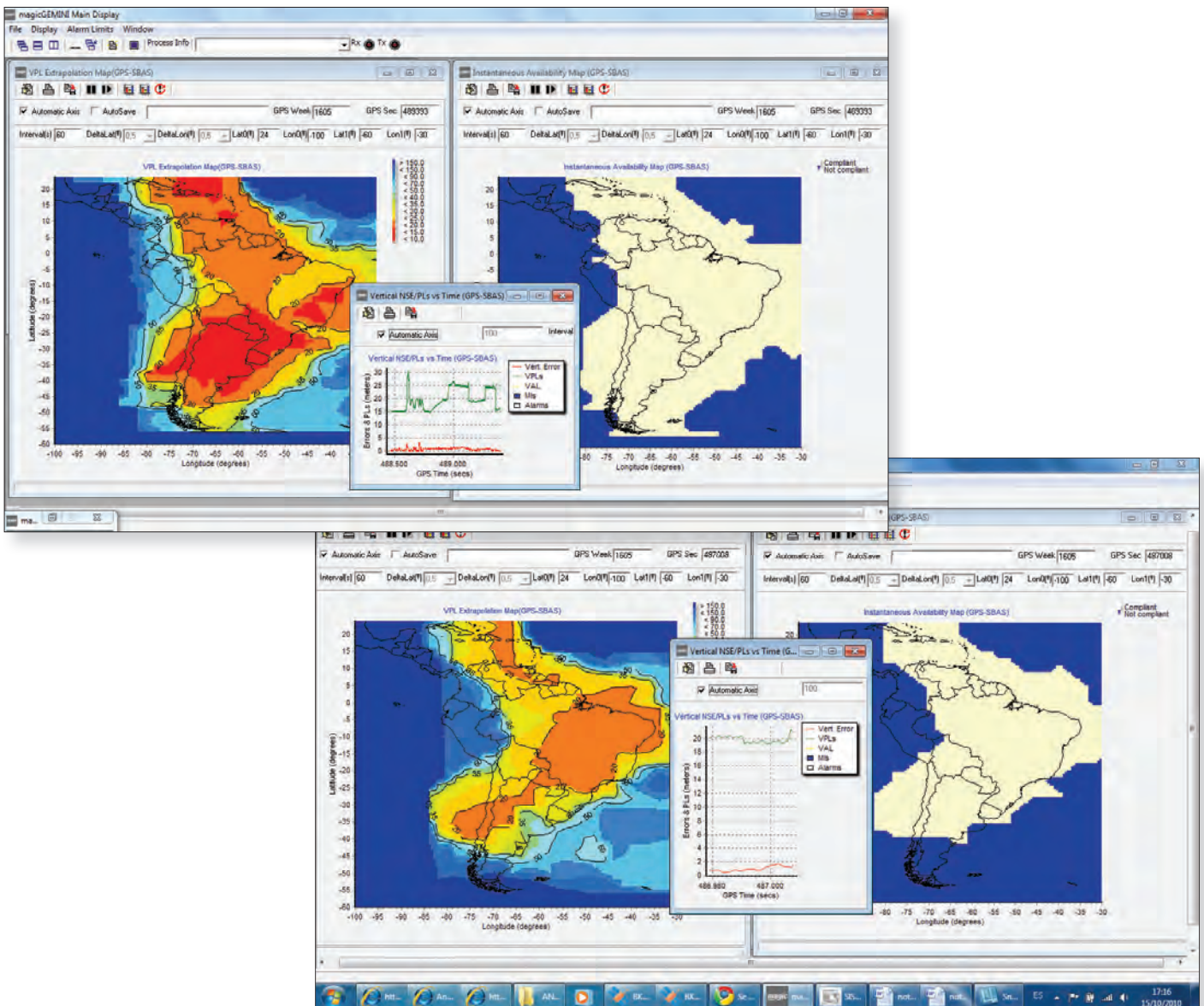
The purpose of the transmission was to show that the performance of SBAS-SACCSA test signals is affordable with minimum infrastructure investments. The presented technology represents a fundamental asset for those entities considering the deployment of a SBAS in any region.

The SBAS GEO test signal broadcast was properly received in-situ using a GPS receiver (GPS map 276C Garmin with

MTO enabled). All GPS satellites in view were monitored by the SBAS signal.

Detailed performances were analysed using a GMV *magicGEMINI* tool connected through the Internet in real time. The following figures present the worst and the best performances obtained during the demonstration in terms of VPL, APV-I availability (HAL=40m/VAL=50m). Additionally, vertical protection level is compared with the vertical error to analyze the integrity.

With respect to the SACCSA project, the technical studies in SACCSAIII are now being finalized with very promising results. The project outcomes will be presented to the next Coordination Meeting (RCC 08). ■



ICAO ONLINE



ICAO website

<http://www.icao.int>

ICAO on Twitter

<http://twitter.com/icaopress>

Stay in touch with ICAO Communications and follow the latest news and announcements.



ICAO on YouTube

<http://www.youtube.com/icaovideo>

More than 28 ICAO videos and counting... including SUSTAINABILITY: YOUR FUTURE, OUR RESPONSIBILITY, highlighting aviation's contribution across the economic, environment and social pillars of sustainable development.

Watch for more ICAO videos on issues and topics of interest to the global aviation community.



Streamline Your System

Esri® can help you do that. We have the tools to create, change, and bring data and charts into your AIS environment. With Esri Technology, you can achieve the data integration needed to provide web services and database-driven products to your valued customers.

Learn more at esri.com/icao





ICAO AIR SERVICES NEGOTIATION CONFERENCE



الهيئة العامة للطيران المدني
General Authority of Civil Aviation

Jeddah, Saudi Arabia 8-12 December 2012



The ICAO Air Services Negotiation Conference (ICAN) brings together air service negotiators from Member States for bilateral or multilateral talks relating to their respective air service agreements.

The event provides a unique central meeting place where negotiators can conduct multiple air service talks in one location and greatly improve the efficiency of the negotiation process.

ICAN also provides a forum through its seminar session for participants to learn about related ICAO guidance and exchange information and views on current trends and issues in liberalization.

For more information please contact: ican2012@icao.int

