AN-Conf/13-WP/311
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THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

REPORT TO THE CONFERENCE ON THE GENERAL PORTION

Note.— After removal of this covering sheet, this paper should be inserted in the appropriate place in the Report Folder.

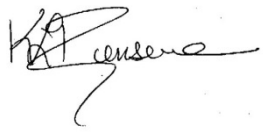
REPORT OF THE
THIRTEENTH AIR NAVIGATION CONFERENCE

LETTER OF TRANSMITTAL

To: President, Air Navigation Commission

From: Chairperson, Thirteenth Air Navigation Conference (AN-Conf/13) (2018)

I have the honour to submit the report of the Thirteenth Air Navigation Conference (AN-Conf/13) which was held in Montréal, Canada, from 9 to 19 October 2018.



Ms. Kirsten Riensema
Chairperson

Montréal, Canada, 19 October 2018

TABLE OF CONTENTS

LIST OF RECOMMENDATIONS

REPORT OF THE THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

HISTORY OF THE MEETING

1. DURATION

1.1 The Thirteenth meeting of the Air Navigation Conference (AN-Conf/13) was opened by the President of the Council, Dr. Olumuyiwa Benard Aliu, at 1000 hours on 9 October 2018 in the Assembly Hall of the Headquarters of the International Civil Aviation Organization (ICAO) in Montréal, Canada. The Secretary General, Dr. Fang Liu, addressed the Conference and the President of the Air Navigation Commission, Mr. Claude Hurley, addressed and attended the Conference. The closing Plenary was held on 19 October 2018.

2. REPRESENTATION

2.1 The Conference was attended by 1 213 members and observers nominated by 116 Member States and 37 international organizations, as well as by advisers and others. A list of participants may be found on the AN-Conf/13 website at: www.icao.int/meetings/anconf13.

3. OFFICERS

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

Conference Chairperson:	Ms. Kirsten Riensema (United Kingdom)
Conference Vice-Chairperson:	Lt. Brig. Jeferson Dominigues de Freitas (Brazil)
Committee A Chairperson:	Mr. Alexis Brathwaite (Trinidad and Tobago)
Committee A Vice-Chairperson:	Mr. Peter Yu (Republic of Korea)
Committee B Chairperson	Mr. Simon Allotey (Ghana)
Committee B Vice-Chairperson	Mr. Guruprasad Mohapatra (India)

4. SECRETARIAT

4.1 The Secretary of the Conference was Mr. Stephen P. Creamer, Director, Air Navigation Bureau, who was assisted by Mr. Richard Macfarlane, Deputy Director, Air Navigation Capacity and Efficiency, Mr. Catalin Radu, Deputy Director, Aviation Safety, and Mr. Denis Guidon, Deputy Director, Monitoring and Oversight. He was also assisted by officers of the Air Navigation Bureau of ICAO 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 the establishment of two committees. The two committees were constituted as shown below:

Committee A (to consider Agenda Items 1, 2, 3, 4 and 5)

Chairperson	Mr. Alexis Brathwaite (Trinidad and Tobago)
Vice-Chairperson	Mr. Peter Yu (South Korea)
Secretary	Mr. Richard Macfarlane, assisted by Agenda Item Secretaries, Ms. L. Cary and Messrs. C. Dalton, S. da Silva and Y. Wang and supported by ANB Technical Officers

Committee B (to consider Agenda Items 6, 7 and 8)

Chairperson	Mr. Simon Allotey (Ghana)
Vice-Chairperson	Mr. Guruprasad Mohapatra (India)
Secretary	Mr. Catalin Radu, assisted by D. Guindon (DD/MO), Agenda Item Secretaries Messrs. M. Costa, M. Marin and N. Rallo supported by ANB Technical Officers

6.2 The discussions in the main meeting were conducted in English, Arabic, Chinese, French, Russian and Spanish. Some working papers were presented in English only. The report was issued in English, Arabic, Chinese, French, Russian and Spanish.

7. OPENING REMARKS

7.1 President of the Council, Dr. Olumuyiwa Benard Aliu

It is my great pleasure to welcome you to this Thirteenth Air Navigation Conference with the theme *From Development to Implementation.*

Aviation today is on the brink of some major transformations. This is reflected in the fantastic growth in aircraft passenger and cargo traffic volumes that are poised to more than double by 2035, the increasing deployment of drone technology, the launch of autonomous, suborbital and supersonic activities, as well as other innovations such as artificial intelligence and block chain technologies.

Throughout our global aviation network and our ICAO Member States, a tremendous modernization will take place over the years ahead. We will see the adoption of new technology and the

implementation of new infrastructure in order to accommodate air navigation capacity and efficiency challenges.

Accordingly, our goal for the next two weeks is to define our collective vision of a safe, interoperable, seamless and global civil air traffic management system for the 21st Century.

As some of you will recall, the air navigation system modernization process began with the Tenth Air Navigation Conference in 1991. At that time, our sector agreed to evolve itself from a ground-based to a largely satellite-based air navigation system.

Subsequently, at the Eleventh Air Navigation Conference in 2003, we endorsed a global air traffic management operational concept and developed a related work programme.

The Twelfth and most recent Air Navigation Conference, in 2012, then introduced the Aviation System Block Upgrades or "ASBU" framework. This was established to help guide sectoral harmonization and interoperability, and to align regional and national implementation initiatives while delivering some much needed investment certainty for State and industry planners.

This Thirteenth Air Navigation Conference was preceded by the Second Global Air Navigation Industry Symposium, or GANIS/2, and the Safety and Air Navigation Implementation Symposium (SANIS) held back to back in 2017.

The main purpose of these GANIS and SANIS events were to gather advance industry viewpoints on the evolution of global air navigation system and to develop insights into any new or existing implementation challenges respective of ICAO's proposed updates to our Global Air Navigation Plan (GANP) and Global Aviation Safety Plan (GASP).

For many years following the 1991 Air Navigation Conference, the goal of our community has been to realize what was referred to as the "Future Air Navigation System".

That future is now, Ladies and Gentlemen, and our air traffic management and operations no longer have the luxury of time to adapt to and meet its challenges.

Through the ASBUs and the consensus-based targets and objectives set-out in the GANP and GASP, ICAO has provided the tools you need to accelerate this transition and to realize the performance capabilities which will keep our sector vital, efficient and fully responsive to the needs and expectations of modern businesses and societies.

At the regional level, this will be supported by the planning and implementation regional groups (PIRGs) and regional aviation safety groups (RASGs) which help guarantee the alignment of procedures and interoperability of systems.

A great deal of this progress can be achieved through better management and use of the sectoral performance data and our over-arching concepts in terms of system-wide information management (SWIM) and collaborative decision making (CDM) are now guiding this process.

And as we adjust to drones or new types of operations above flight level 600, we should not only remain ever-focused on the safety and efficiency performance which are the key value offering

of air transport, but also be vigilant regarding potential threats to the increasingly connected systems supporting contemporary operations.

During the Conference you will, therefore, be evaluating some new proposals to define and address these challenges in a way that engages every stakeholder in the aviation industry, notably through the creation of a new digital global “trust framework”.

This framework has been designed to build upon your existing certification and licensing oversight commitments, enshrined in the Chicago Convention, and to enable the interoperable evolution of these new and connected systems.

Regarding the evolution of the Universal Safety Oversight Audit Programme Continuous Monitoring Approach (USOAP CMA), some additional adjustments, are on the agenda of the Conference.

I am pleased to acknowledge that, after nearly two-decades of these audit activities, ICAO has recorded significant improvements in effective implementation of global Standards and Recommended Practices (SARPs) in many member States, particularly since the introduction of the *No Country Left Behind* initiative.

Nevertheless, many States also continue to struggle in complying with the SARPs due to shortfalls in their resources and technical capacities.

To address this, ICAO has been promoting regional mechanisms, including the establishment of collaborative regional safety oversight organizations (RSOOs).

However, many of the established RSOOs are yet to be as effective as they should in strengthening the safety oversight capabilities of their component countries.

There are many factors and challenges including varying degrees of delegated responsibility, lack of expertise and resources that are preventing the RSOOs from attaining their full potentials.

These persisting concerns were discussed at length at the RSOO Forum which ICAO and the European Aviation Safety Agency (EASA) convened together in Swaziland, now Eswatini, in 2017.

It eventually endorsed that ICAO would pursue a new global aviation safety oversight system (GASOS) that is focused on streamlining ICAO’s engagement and support to RSOOs to enable them effectively discharge their mandates to their constituent States.

The initial concept and associated action plan were globally endorsed by the DGCA meeting in 2017 and we are looking forward to you for the refinement of the programme and, in due course, its presentation to the 40th Assembly.

Ladies and Gentlemen, the outcome of your work during the next two weeks will enable ICAO to refine its work programme and pursue the standardization so urgently needed at this time to help our sector adapt and evolve.

Bear in mind as well that our discussions and endorsements here will help prepare us for efficient deliberations during the 40th ICAO Assembly in 2019.

Accordingly, with the vast majority of the technical topics that will have been discussed and agreed on during the next two weeks, the Assembly's Technical Commission will be able to occupy itself on a more detailed basis with the adoption of the new GANP, GASP and their supporting work programmes, as well as any urgent issues which may arise in the interim.

I am convinced that this approach will tremendously improve the overall efficiency of ICAO with respect to its core air navigation responsibilities to the world.

I would also like to take a moment to recognize and thank the military community for its presence with us here and for its interest to work together with civilian authorities to improve the air navigation system as a whole.

Effective civil-military collaboration and cooperation remains essential to our goal of guaranteeing the safety and efficiency of all flights and of addressing together the challenges of modernizing the air navigation system for all airspace users.

Before concluding today, I would like to turn your attention to the last Council Off-site Strategy Meeting (COSM), held in June 2018, at which the ICAO Council took time to focus on *Aviation of the Future* and on how ICAO can better lead our sector in responding dynamically and effectively to the exponential changes and pace of innovation that we are witnessing and are anticipating in the decades to come.

The COSM particularly emphasized the challenges and opportunities associated with the emergence of the commercial space sector.

In this regard, I believe that it is time for the Organization to take the bold steps to position itself as the leader in global standardization in this domain. And by doing this in a non-competitive but collaborative manner with our member States, we can set the template for addressing other emerging technologies.

The off-site meeting also emphasized the need to invest in and develop the next generation aviation professionals who will be responsible for ensuring a safe, interoperable, seamless and global civil air traffic management system in the decades ahead of us.

The ICAO Next Generation of Aviation Professionals Programme plays an important coordinating role in the implementation of strategies to address associated challenges.

And I have further proposed an aviation thematic competition among teenagers at national, regional and global levels as a means to stimulate their interest to pursue careers in aviation.

Dear colleagues, at this time, I wish to acknowledge the dedication, high degree of professionalism and commitment of all aviation professionals to their role in aviation safety.

Just recently this commitment was very poignantly demonstrated by Mr. Anthonius Gunawan Agung, an air traffic controller at Mutiara Sis Al Jufri Airport in Palu, Indonesia. During the recent earthquake and tsunamis, Anthonius delayed evacuating the air traffic

control tower until the safety of a departing aircraft was assured. As a direct consequence of his selfless heroism, he later died from the injuries he sustained.

Anthonius' fervent commitment to aviation safety serves as an example to us all, as individuals, organizations and States. In this regard, we should all acknowledge the delegation of Indonesia here with us today and extend our most heartfelt condolences to his family and those adversely affected by this tragic event.

Excellences, Ladies and Gentlemen, as you are aware, the ICAO Council, in support of the No Country Left Behind initiative, awards the Council President Certificate every year to recognize States from each ICAO region which have made significant progress in resolving their safety oversight deficiencies and improving the effective implementation (EI) of ICAO SARPs as measured through our USOAP CMA activities in the preceding year.

It's been my great pleasure to present the 2018 Council President Certificates directly to some recipient States that I have had the privilege to visit this year. However, as officials from a number of our recipient States this year are present with us today, I thought it beneficial to celebrate their achievements at this Conference:

- Bangladesh
- Burkina Faso
- Finland
- Jordan
- Kuwait
- Portugal
- United Republic of Tanzania

Congratulations to the recipient Delegations and thank you everyone for your patience and kind applause for these noteworthy accomplishments.

Finally, Ladies and Gentlemen, I now declare "open" this Thirteenth ICAO Air Navigation Conference and wish to invite the President of the ICAO Air Navigation Commission, Mr. Claude Hurley, to elaborate further on your challenging agenda.

I wish you all a very successful Conference.

7.2 **Secretary General of ICAO, Dr. Fang Liu**

Excellences,
Ladies and Gentlemen

Over the next ten days, you will be exploring how to optimize the evolution of aviation safety and air navigation capacity and efficiency.

As we work together toward these goals, we must also keep in mind aviation's unique and tremendous potential to improve peoples' lives.

While I am confident that many of you are aware of the socio-economic contributions our sector makes to national and regional communities, at times that "big picture" can get lost in the technical details.

A key challenge for us in helping States to not only appreciate but also act on this point concerns infrastructure under-funding.

But please also recall that a great deal can be accomplished when States take the time to meaningfully integrate their aviation investment priorities into their national development strategies.

It was for this purpose that the ICAO Secretariat has worked so hard to link your work to the United Nations Sustainable Development Goals (UN SDGs) and through these to the socio-economic outcomes being sought under the *2030 Agenda for Sustainable Development.*

The more clearly governments can appreciate these links, the more willing they will be to invest in aviation projects.

This is one of the key messages myself and ICAO's Council President have been delivering during ICAO's global engagements, with special emphasis on how local levels of ICAO compliance play a critical role on how effectively States can optimize their aviation benefits.

This point is very clearly underscored by the fact that States' attainment of no fewer than fifteen of the seventeen United Nations 2030 Sustainable Development Goals (SDGs) is greatly facilitated by the local availability of ICAO compliant operations.

You will be delving into a range of topics during this event which pertain to many recent air transport innovations and it is important in this context to recognize how the emergence of new entrants continues to enhance and expand the socio-economic value of aviation.

This point is illustrated by the fact that some of the concepts that you will be enabling here, through your work on the Global Aviation Safety Plan (GASP) and the Global Air Navigation Plan (GANP) for example, have the potential to enable new aircraft types to provide internet connectivity to more than a billion people in the coming years.

Additional capabilities should also be realized relating to the delivery of medicines to inaccessible areas or to reducing emergency response times in post-disaster scenarios.

These are but a few examples of what your work here relates to, so please appreciate that life for many will improve on this planet directly because of the decisions and progress you are now poised to undertake together.

As we appreciate those impacts, it is also important to recognize the role ICAO plays in helping you to realize them.

It is much more efficient for you and for our sector in general to coordinate and collaborate here, collectively, than it is to have multiple efforts producing patchwork solutions which can vary from State-to-State or Region-to-Region.

And in a related sense, it is critical that ICAO, for its part, is able to demonstrate with confidence that we are setting-out a global agenda which is as practical as it is visionary and which will make the best use of all available resources.

To that point, it is important to note that the outcomes of your Conference will provide critical inputs to the development of the 2020-2022 ICAO Business Plan.

Through it, we achieve the transparency you deserve with respect to what we spend and what we deliver. This accountability, in turn, gives the global community the confidence it rightfully demands regarding the purpose and value of our technical programmes.

Efficiency and effectiveness will be high on your list of priorities as you assess everything before you over this ten-day event and they are also essential to how ICAO is organizing and prioritizing its resources.

Improving this Organization's ability to serve its Member States and the aviation sector, through a results-based management approach, has been a key priority of mine and one which is now shared across our Secretariat.

This speaks to the many resource challenges ICAO is faced with in the current geo-political environment. We cannot, however, let these distract us from the continuing need to facilitate and implement your decisions.

Simply put, ICAO has had to become quite innovative in terms of how we fund and deliver our assistance and leadership in air transport.

Many of you may be surprised to learn, for instance, that even some of the more important priorities we are hard at work on must all be paid for through extra-budgetary sources we proactively seek out and mobilize.

This includes programme items such as cybersecurity and cyber-resilience, our work to assist with domestic remotely-piloted and unmanned aircraft guidance and other key developments we must accommodate and guide through our global Standards.

Before concluding today, Ladies and Gentlemen, I would simply like to highlight that aviation remains the safest way to travel and that some of the credit for our sector's incredible safety and efficiency performance refers directly to the progress achieved at past ICAO Air Navigation Conferences.

It will now be my great pleasure to pass the floor to Mr. Stephen Creamer, the Director of ICAO's Air Navigation Bureau, and in doing so let me please also wish you all a very successful series of discussions and decisions as you help to shape the coming decade of international civil aviation.

Thank you.

7.3 **President of the Air Navigation Commission, Capt. Claude Hurley**

Good morning as well to Dr Liu, Mme Secretary General, Excellences of the ICAO Council, fellow Commissioners, members of the Secretariat, and you, our distinguished participants at this, ICAO's Thirteenth Air Navigation Conference.

There's more than a thousand of you, occupying key roles in the States we serve and with our aviation industry stakeholders – more than a thousand of you who chose to be here today, at this Conference.

Considering that it is 15 degrees warmer this morning than it was yesterday, I'm surprised that not more of you skipped my speech to instead go explore Montréal during this brief return to summer weather. But joking aside, I truly feel blessed to be in the same room as you, in this, the ICAO Assembly Hall – a room full of gravitas and hope – as we embark, together – through the exchange of ideas and constructive debate – on the difficult but necessary task of setting priorities and choosing key objectives for aviation safety and air navigation ahead of next year's ICAO Assembly.

What I would like to share with you are some thoughts on how thrilled I am about all of you being here today and how the choices you'll make over the next two weeks will set the direction for how we'll tackle together the challenges of implementation.

But before I do, it might be worthwhile to explain that what you heard, just now, was the traditional ICAO protocol for speaking up in formal meetings, whether it's in the Commission, the Council or even the Assembly.

For me, I use the words "Thanks/Hello/Welcome/Topic" to remember the protocol. But rest assured that, while it's not needed in this setting, I only bring it up today as I had the occasion lately to reflect that, as a pilot coming in from the cold, so-to-speak (it was January when I first arrived at ICAO…), it took me almost a year to find my voice in these formal meetings.

And yet, for all of us to find our voice and to speak up with our opinions – whether we're from Industry or States – is perhaps the key to ICAO getting early feedback on any proposals so that we, together, can build a shared situational awareness on any potential implementation challenges and for us – then – to build consensus on how best to tackle these challenges, together.

As you well know, it's not for lack of good intentions that things do not always work out.

What we understand are the current best practices that can be implemented now.

Some years ago, I was managing a start-up flight operation overseas and, one day, we received in the weekly – and much anticipated – delivery of aircraft parts, something beautifully crafted in aircraft aluminium and brightly painted in company colours.

It was not, however, an extra aircraft part, but a large bulletin board intended as the new company-wide *standard* for posting safety-critical information. It's a nice touch, right? – and of course, being at ICAO, you will understand that I am a big believer in both *safety* and *standardization* – but there were some *implementation* challenges, which I'm a little embarrassed to share with you.

Being on spotty dial-up internet – if you can remember how much slow that was – it took forever to download the graphic-heavy safety bulletins, only to discover that these pre-designed "safety theme of the week" posters had been formatted for 8.5" x 11" paper, the common format here in North America.

It won't be a surprise to you that the only paper we could source locally, A4, met that other, much more prevalent world standard – ISO 216.

As well, this beautifully crafted aluminium safety bulletin board had been installed with - and you can probably guess where I'm going with this by now – not with the much more common international two-hole spacing standard (ISO 838 Standard of 80 mm for those who appreciate details), but with the unique North American spacing of 70 mm.

Yes, it's maybe only a paper saga, but sadly, with no compatible paper or two-hole punch locally, we had some implementation challenges if we were to live up to the company standard for the effective distribution of safety information.

I only bring this up as an amusing story and I purposely stayed away from the many real aviation challenges we have all surely lived. For those, and for practical suggestions as to the real-world challenges of SMS implementation, I do want to point you towards the excellent ICAO safety management implementation website put together by the Secretariat which provides examples, tools and supporting educational material which you will surely find very useful.

The point of my story though, is that even the most simple of initiatives, however well-intentioned, can come with unexpected obstacles to full implementation if we are not fully aware of the realities in the field.

This theme of "From Development to Implementation" will inform all of our discussions during this, the ICAO Thirteenth Air Navigation Conference.

Essentially, we hope to leverage **your** expertise of what the difficulties are outside these walls so that the proposals being developed by ICAO are based on a deeper understanding of the realities for you, as States - and Industry - so that we together, can not only build a shared situational awareness of the problems themselves, but hopefully a consensus on the best paths to success going forward.

In 2017, over 4 billion passengers safely took to the skies.

If you are jetlagged and still up late tonight, you might reflect on that fact that before the clock strikes midnight tonight, like any typical October Tuesday, 12 million passengers will fly - today - on over 120,000 flights to close to 4,000 airports, watched over safely by 170 Air Navigation Service Providers. These flights will also carry over $20 billion dollars' worth of goods (well, $20 billion Canadian dollars maybe, but you get the point…). That's only in one day. By the end of this Conference, close to 150 million people – and some pets – will have flown, some for the first time.

By 2030, forecasts are predicting that this traffic globally, will double, and with some regions seeing triple the traffic.

With some States already experiencing 10 per cent annual growth, new commercial aircraft are being added to registry at a never-before-seen rate.

As well, not only is traditional traffic increasing at an unprecedented pace, but we are also seeing the rapid growth of new entrants into the air navigation system.

Technological innovations in unmanned aircraft systems, supersonic aircraft, operations above FL 600, and commercial space flights, to name but a few emerging sectors, will create wonderful new opportunities for the Next Generation of Aviation Professionals – and the travelling public they will serve - but will also bring with it significant challenges, as we together look for ways to safely integrate this new traffic into ever more congested airspace.

This may result in the need for fundamental changes in how things are done and, as the President of the Council Dr. Aliu eloquently underlined, these changes can successfully be managed and the solutions can be globally harmonized.

The international civil aviation community has successfully tackled significant change-management challenges before. For example, the evolution from a ground-based system of air traffic control to a satellite-based system of air traffic management is already bringing clear benefits.

Many of you likely flew trans-polar routes coming into Montreal.

They are long flights, eh? And, by a show of hands, maybe even long enough for you to read all 300 working papers being presented here this week? ... *sure*, I, for one, believe you!

I really do, but for the sake of my story, let's say all your readings were already done weeks ago, you could not sleep on the long flight over, and you were looking for a distraction as you awaited the next delicacy to come from the in-flight galley.

If, by chance you were not catching up with what Tom Cruise was doing in sequel # 6 to the original (and best) *Mission Impossible* - if instead, you watched the moving map at any point during the four or five hours it took you to cross the arctic and transit back into inhabited territory, you may have reflected on Canada's vast geography, much of which is not served by traditional ground-based, limited-range navaids like VORs and NDBs.

As a younger man – which was not as long ago as my looks might suggest – I flew search and rescue in Canada's Air Force.

Search and rescues, by their very nature, are not usually conveniently located below an airway and it won't come as a surprise to any of you that IFR was somewhat unreliable for precise navigation off-airways, up North, before the age of GPS.

Flying rescue missions up North was our own version of *Mission Impossible*, as for us, often IFR meant "I Follow Roads" or "Railroads". And when the map ran out of those as we flew North, IFR became "I follow Rivers". I joke. But the limitations of dead-reckoning over long distances in Northern Canada with few landmarks were such that even when Omega – a VLF-band radio-beacon system – was introduced, knowing where we were to plus or minus 15 miles in the frozen, feature-less tundra was a marked improvement.

Later, we were equipped with LORAN-C, which improved navigation precision dramatically near the coasts, but much less so in the North. In practice, to successfully accomplish a SAR

mission in Northern Canada in the early-90s meant that helicopter crews needed the occasional radio fixes to military patrol aircraft providing top-cover, as they were equipped with inertial navigation systems – and dedicated navigators.

The alternative was to fly on clear nights and rely, like seafarers of old, on the constellations of Cassiopeia and Ursa Major to point to the North Star. Sadly, while I'm sure that many of you can still navigate by the stars, the only time it might come in useful this week would be to find your way back to your hotel after a late reception, should your phone's map app not have figured out the ever changing construction detours in Montreal.

The point is that we got the rescues done and those that could be saved were. But nowadays, with the advent of reliable precise positioning data, available to anyone with a GNSS receiver, being lost off-airways is no longer a thing and the decisions that enabled the widespread use of satellite-based system for navigation and air traffic management were made here and in the world's capitals by our predecessors; something we, as a community, can be very proud of.

This last July, the Air Navigation Commission had the rare opportunity to do a study trip to the ICAO-South America Region, including wonderful stops in both Peru and Colombia. We were impressed by how States in the region, such as Peru and Colombia are successfully managing significant growth in traffic. As one example, the use of performance-based navigation (or PBN) approaches to thread traffic into the difficult terrain surrounding the high-altitude airport at Cuzco, has enabled lower-minima approaches and longer operating hours, which in turn, helps the Cuzco airport manage increased traffic demand.

Similarly, in technical discussions I have had with States in the ICAO Asia-Pacific Region, I was struck by the many examples of how the Standards and Recommended Practices (SARPs) that we discuss here, are being put to good use and successfully implemented. One example is how Malaysian industry stakeholders worked collaboratively with the State regulator to implement Required-Navigation Performance – Authorization Required (or RNP-AR) approaches across Malaysia's major airports, which not only enabled better traffic flow and shorter leg times, but literally saves tons of fuel and brings with it significant environmental benefits.

The point being that the decisions you will make here over the next few weeks can and surely will bring measurable improvements to aviation safety, efficiency, capacity, security and the environment, all the while managing emerging risks in a globally harmonized way.

Having had a chance to read those 300 working papers you have brought to the table, I applaud you for the efforts you have already made to prepare for this Conference. You are the leaders that will decide on and enable us all to manage, together, how best to adapt to not only massive increases in traditional traffic but also allowing new entrants – with the benefits that new technologies bring – into a shared airspace. So, let's go far, together.

Your work of the next two weeks will be consolidated into reports by the dedicated and talented professionals in the ICAO Secretariat. The results of your deliberations will be presented to the Air Navigation Commission, so that we, in our role as technical advisors to the ICAO Council, can best help advise on the organization's agenda for next year's Assembly.

It is, perhaps, a good time to ask my fellow Commissioners to stand so that I can introduce you to the Air Navigation Commission – **your** Air Navigation Commission.

As per Article 56 of the Chicago Convention, the Air Navigation Commission is composed of 19 members appointed by the Council, from among persons nominated by Contracting States. Article 56 goes on to say we are to have suitable qualifications and experience in the science and practice of aeronautics and if I were to list the many impressive skills and varied professional experience of my learned colleagues, I would not only go over my allotted time at the podium but I would have to also make the remark that occasionally exceptions are made, and a pilot or two slips in, even those of us with a fondness for helicopters.

There are two points worth highlighting though about the Commission's role as per the Convention (as my colleagues retake their seats), the first of which is that while we are nominated by States. You will see, if you come visit the ANC Chamber while you're here which you're most welcomed to, that we do not sit behind our flag but behind our individual names representing, therefore, not only our own individual expertise but also, most importantly, the interest of all 192 contracting States – all of you!

The other point is that we do not work alone. There is a vibrant and active ANC Community made up, first of all, by panel members who devote countless hours working hand-in-hand with the Secretariat to bring proposals to the table. As well, in the Chamber itself, we are blessed with having dedicated, erudite and eloquent Observers from States and Industry such as those from accredited international organizations, like as our good friends in IATA, ACI, IFATCA, IFALPA, IBAC, IAOPA, and ICCAIA, all so that we do not discuss proposals for Standards and Recommended Practices in isolation without the benefit of fully understanding the impact on our stakeholders and any resulting implementation challenges.

Throughout, we are supported by the professionals in the Secretariat who make it their life's work to ensure that we, ourselves, fully understand the background and the many nuances of what is being proposed. We are truly blessed, so…let's go far together.

As such, I'm thrilled that you are all here, especially in this lovely weather, as your presence demonstrates the commitment you, your organizations, and your States have to this work.

As a final thought, it should be noted that this Conference is an essential element in reaching out to you ahead of next year's Assembly, to find ways that we can build a shared situational awareness of the challenges and opportunities ahead, and how best to prioritize our limited resources so as to build a better future, together, for aviation and our travelling public – and for that I again thank you for being here.

Happy landings.

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/13 website at: www.icao.int/meetings/anconf13)

AGENDA OF THE MEETING

COMMITTEE A

Agenda Item 1: Air navigation global strategy

1.1: Vision and overview of the sixth edition of the GANP
1.2: Air navigation performance improvement and measurement through the aviation system block upgrades (ASBUs) and basic building blocks (BBBs) framework
1.3: Air navigation roadmaps
1.4: Air navigation business cases

Agenda Item 2: Enabling the global air navigation system

2.1: Aerodrome operations and capacity
2.2: Integrated CNS and spectrum strategy
2.3: Future provision of aeronautical meteorological service

Agenda Item 3: Enhancing the global air navigation system

3.1: System-wide information management (SWIM)
3.2: Flight and flow information for a collaborative environment (FF-ICE) and trajectory-based operations (TBO)
3.3: Air traffic flow management (ATFM)
3.4 Civil/military cooperation
3.5 Other ATM issues

Agenda Item 4: Implementing the global air navigation system and the role of planning and implementation regional groups (PIRGs)

4.1: The economic benefits brought by aviation
4.2: Implementing BBBs and minimum service Standards
4.3: Implementing ASBUs for performance improvement
4.4 Implementing search and rescue (SAR) processes and procedures

Agenda Item 5: Emerging issues

5.1: Operations above Flight Level 600
5.2: Operations below 1000 feet
5.3: Remotely piloted aircraft system (RPAS)
5.4 Cyber resilience
5.5 Other emerging issues impacting the global air navigation system including unmanned aircraft systems (drones), and supersonic and commercial space operations

COMMITTEE B

Agenda Item 6: Organizational safety issues

6.1 Strategic plan

6.1.1: Vision and overview of the Global Aviation Safety Plan (GASP), 2020-2022 edition
6.1.2: Enabling safety performance monitoring; goals, targets and indicators in the 2020-2022 edition of the GASP
6.1.3: Global Aviation Safety Oversight System (GASOS)

6.2 Implementation of safety management

6.2.1: State safety programmes (SSPs)
6.2.2: Safety management systems
6.2.3: Developing safety intelligence

6.3 Monitoring and Oversight

6.3.1: The evolution of the Universal Safety Oversight Audit Programme (USOAP) continuous monitoring approach (CMA)
6.3.2: Support and the USOAP CMA Online Framework (OLF)

Agenda Item 7: Operational safety risks

7.1: Facilitation of data-driven decision-making in support of safety intelligence to support safety risk management
7.2: Operational safety risks at the global, regional and national levels, and the role of RSOOs and RASGs in achieving the GASP goals
7.3: Other implementation issues

Agenda Item 8: Emerging safety issues

8.1: Measures to proactively address emerging issues;
8.2: Emerging safety issues

GLOSSARY OF TERMS

5LNCs	Five letter name codes
A-CDM	Airport collaborative decision making
ACI	Airports Council International
ACSA	Agency on Aeronautical Safety for Central America
ADIZ	Air defence identification zone
ADSB	Automatic dependent surveillance — broadcast
AFCAC	African Civil Aviation Commission
AFI	Africa-Indian Ocean
AFPP	African Flight Procedure Programme
AFTN	Aeronautical fixed telecommunication network
AGA	Aerodromes, air routes and ground aids
AGL	Above ground level
AI	Artificial intelligence
AIM	Aeronautical information management
AIS	Aeronautical information service
ALoSP	Acceptable level of safety performance
AMHS	ATS message handling system
ANP	Air navigation plan
ANS	Air navigation services
ANSP	Air navigation services provider
APAC	Asia and Pacific Office, Bangkok
APEX	ACI Airport Excellence
AR	Authorization required
ARN	Aircraft registration network
ASBU	Aviation system block upgrade
ASIAP	Aviation Safety Implementation Assistance Partnership
ASTs	Abuja Safety Targets
ATC	Air traffic control
ATFM	Air traffic flow management
ATM	Air traffic management
ATS	Air traffic services

ATSEP	Air traffic safety electronics personnel
BBB	Basic building blocks
BSTF	Black Sea Task Force
CAA	Civil aviation authority
CANSO	Civil Air Navigation Services Organisation
CBA	Cost-benefit analysis
CDM	Collaborative decision-making
CMA	Continuous monitoring approach
CNS	Communications, navigation, and surveillance
COMESA	Common Market for Eastern and Southern Africa
CONOPS	Concept of operations
COSCAP	Cooperative Development of Operational Safety and Continuing Airworthiness Programme
COCESNA	Central American Corporation of Air Navigation Services
CPDLC	Controller-pilot data link communications
CST	Commercial space transport
DAA	Detect and avoid
DFMC	Dual frequency, multi-constellation
DPRK	Democratic People's Republic of Korea
EANPG	European Air Navigation Planning Group
ECAC	European Civil Aviation Conference
EU	European Union
FAA	Federal Aviation Administration
FF-ICE	Flight and flow information for a collaborative environment
FIR	Flight information region
FMS	Flight management system
FSF	Flight Safety Foundation
FWT	Folding wing tip
GA	General aviation
GADSS	Global Aeronautical Distress and Safety System
GANP	Global air navigation plan
GASeP	Global aviation security plan
GASOS	Global Aviation Safety Oversight System
GASP	Global aviation safety plan

GBAS	Ground-based augmentation system
GEUSR	Group of Experts for a USOAP CMA Structured Review
GLONASS	Global Navigation Satellite System
GNSS	Global navigation satellite system
GRSAP	Global runway safety action plan
GSG	GANP Study Group
GSI	Government safety inspector
GSI-AIR	Government safety inspector - airworthiness
GSI-OPS	Government safety inspector - operations
GSI-PEL	Government safety inspector - personnel licensing
IAC	Interstate Aviation Committee
IAOPA	International Council of Aircraft Owner and Pilot Associations
IATA	International Air Transport Association
IBAC	International Business Aviation Council
ICARD	International Codes and Routes Designators
ICCAIA	International Coordinating Council of Aerospace Industries Associations
IFAIMA	International Federation of Aeronautical Information Management Associations
IFALDA	International Federation of Airline Dispatchers Associations
IFALPA	International Federation of Air Line Pilots' Associations
IFATCA	International Federation of Air Traffic Controllers' Associations
IFATSEA	International Federation of Air Traffic Safety Electronics Associations
IPS	Internet Protocol Suite
IRis	Integrated risk picture
ISAM	Integrated Safety Assessment Model
ITF	International Transport Workers' Federation
ITU	International Telecommunication Union
ITU-R	International Telecommunication Union - Radio Communication Sector
IWXXM	ICAO meteorological information exchange model
KPI	Key performance indicator
MET	Meteorological
NCLB	No Country Left Behind
NEXTT	New Experience Travel Technologies
NGAP	Next generation of aviation professionals

NOPS	Network operations
OLF	Online framework
PANS	Procedures for Air Navigation Services
PANS-TRG	Procedures for Air Navigation Services-Training
PASOC	Central American Safety Events Analysis Programme
PBN	Performance-based navigation
PIRGs	Planning and implementation regional group
POI	Project outcome indicators
PPP	Public-private partnership
PPT	Panel project team
PQ	Protocol question
RAIOs	Regional Accident and Incident Investigation Organizations
RASGs	Regional Aviation Safety Groups
RNP	Required navigation performance
RPAS	Remotely piloted aircraft systems
RSP	Runway safety programme
SAM	South American
SAR	Search and rescue
SARPs	Standards and Recommended Practices
SBAS	Satellite-based augmentation system
SDCPS	Safety data collection and processing system
SIDS	Small island developing States
SIMS	Safety Information Monitoring System
SMI	Safety management implementation
SMM	Safety Management Manual
SMS	Safety management system
SoD	State of design
SoR	State of registry
SPI	Special position identification safety performance indicators
SSP	State safety programme
SSR	Secondary surveillance radar
SST	Supersonic transport
SWIM	System-wide information management

TAC	Traditional alpha numeric code
TAM	Total airport management
TBO	Trajectory-based operations
UA	Unmanned aircraft
UAS	Unmanned aircraft systems
UAV	Unmanned aerial vehicle
UN	United Nations
UN SDG	United Nations Sustainable Development Goals
USOAP	Universal Safety Oversight Audit Programme
UTM	UAS traffic management
VHF	Very high frequency
WAKE	Wake turbulence
WMO	World Meteorological Organization

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