SPRING 2022

# ECACNEWS #75

European Civil Aviation Conference Magazine

## ACCIDENT INVESTIGATIONS

*Committed to improving safety*

ECAC • CEAC

# CONTENTS




ECACNEWS
#75 – Spring 2022

**Publication Director**
Patricia Reverdy

**Editorial Committee**
Patricia Reverdy, Simona Wist, Gillian Caw

**Editor**
Gillian Caw
gcaw@ecac-ceac.org

**Designer**
Bernard Artal Graphisme
Cover: © ahasoft
Ph: © CEAC

ECAC News welcomes feedback and content ideas from interested parties.

Subscription and distribution requests should be made to communications@ecac-ceac.org





Follow ECAC on
or LinkedIn
Visit: **www.ecac-ceac.org**

# A new chapter for aviation safety and accident investigations

**Piotr Samson**
*President of the Civil Aviation Authority of Poland, and ECAC Focal Point for Safety*

As newly appointed ECAC Focal Point for Safety, I am very pleased to present this issue of ECAC News dedicated to aviation safety and air accident investigations.

The investigation of aviation accidents and serious incidents is today recognised as a fundamentally important element of improving aviation safety, and those responsible for conducting safety investigations have come to be considered by national and international aviation safety authorities as key partners, both on the policy and technical levels.

Accident and incident investigations, as defined by ICAO Annex 13 to the Chicago Convention, are carried out within a framework designed to promote objectivity, transparency and international cooperation. Their objective is not to address notions of liability or blame, but rather to provide explanations for civil aviation occurrences, by analysing and understanding findings, and then making safety recommendations to reduce the risk of recurrence. This model has been highly successful in making aviation as safe as it is, and has been drawn on by authorities investigating accidents and incidents in many other domains.

Safety remains a strategic priority for ECAC: enhancing the effectiveness of Member States' safety investigation capabilities, promoting European experience and know-how in safety investigation within the wider international aviation community, and contributing to safety performance by sharing data from safety investigations are the key objectives included in the ECAC work programme for 2022-2024.

The ECAC Air Accident and Incident Investigation Group of Experts' (ACC) meetings and thematic workshops are attended by an increasing number of experts from safety investigation authorities, European and international organisations, and aviation industry. These events continue to focus on the exchange of experience in methods of investigation, the evolution of investigation techniques and tools, and the challenges encountered during investigations.

We are now facing a new chapter of aviation safety, in which technology, digitalisation, unmanned aircraft systems, and the recent COVID-19 pandemic have impacted the traditional way of conducting air accident investigations.

This edition of ECAC News reflects on some of the top priorities of the safety community. These include the evolution of ICAO Annex 13 and the effect of the new drones' regulations on aviation safety; challenges and lessons learnt in conducting accident investigations during the COVID-19 pandemic; developing new competencies and skills for investigators; strengthening the independence and credibility of safety investigation authorities in conflict-of-interest situations; and communication with air accident victims and their relatives.

All this work could not have been achieved without the ceaseless toil of experts who continuously do their best to react to the constantly changing situation in the sector. I would therefore like to express my warm thanks to Rémi Jouty, Director of the Bureau of Enquiry and Analysis for Civil Aviation Safety (BEA, French: *Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation civile*), whose six-year deputy chairmanship of the ACC group came to an end in December 2021. His commitment to maintaining a high level of cooperation between all ECAC Member States on civil aviation investigations has been fundamental to the success of the ACC group.

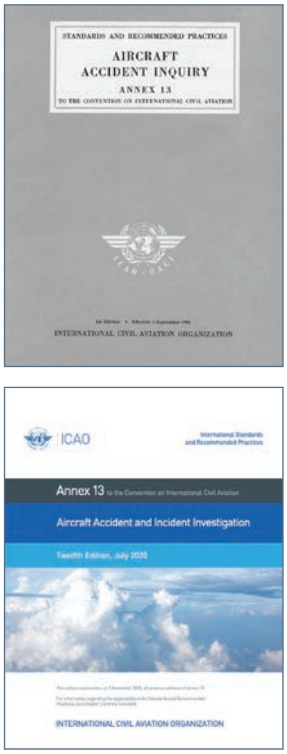
Finally, I would like to thank all the contributors to this edition of ECAC News, and I invite you to read the articles, hoping it will generate new ideas and fruitful discussions around different aspects of aviation safety and air accident investigations.

# How is ICAO Annex 13 evolving to contribute to air safety?

**Olivier Ferrante**
*Chair of the ICAO Accident Investigation Panel (AIGP)*

**Accident investigations have been deep-rooted in the 1944 Chicago Convention since its inception, through Article 26. The Standards and Recommended Practices (SARPs) followed, through Annex 13 (the first version was released in 1951). To continuously improve civil aviation safety, ICAO Member States have had the obligation to investigate accidents (and later, serious incidents) wherever they occur in the world (including over the high seas) and to produce a Final Report to share lessons learnt with stakeholders, and to inform the general public.**

**This article underlines key characteristics pertaining to Annex 13 and aviation safety. It first covers its international dimension, addressing socio-political crises both at international and national levels. Then it shows how Annex 13 has contributed to enhance air safety. Accidents have victims, and often result in pain, suffering, damage, loss and numerous challenges for those involved. Aircraft accident and incident investigation is a complex process and has often involved many stakeholders across different Member States. Throughout the years, Annex 13 has provided important guidance for independent and no-blame investigation with the sole objective of improving aviation safety, and it has helped to avoid many diplomatic issues. The ICAO Accident Investigation Panel (AIGP) has strived to address these challenges in a changing environment by reviewing Annex 13 and its related documentation in a timely manner in order to propose updates when necessary.**




*From the first edition of Annex 13 (1951) to the twelfth edition (2020)*

## The overall aviation safety enhancements remain present across the following three dimensions

### 1) The international dimension – a diplomatic tool

Annex 13 can be seen as a truly international Annex that includes rules governing the interaction between ICAO Member States in the context of a crisis. Many provisions in Annex 13 are indeed of a diplomatic nature, especially when referring to accredited representatives.

They are based on very practical aspects and common sense. Investigators need to get access to pertinent information from different places, which is largely in the States where the aircraft is registered, operated, built and designed. Likewise, the regulator, operator, manufacturer, etc. need access to the data collected by investigators in case they have to take remedial actions to fix an urgent safety issue. This international two-way flow of safety data is one characteristic of the Annex 13 system with the privileges and duties of accredited representatives and technical advisers.

This is really a diplomatic tool where ICAO Member States talk to each other via their accident/incident investigation authorities. The technical advisers (e.g. from the manufacturer, operator and regulator) are under the control of independent authorities. The overall consultation process enables all parties to have access to data and to provide comments. The process is transparent, while the control of communication remains the privilege of the State conducting the investigation, generally the State of Occurrence.

This balanced system has worked very well over the years as Annex 13 is well known and well accepted by Member States because it respects their sovereignty. They are indeed comfortable and familiar with its content because it is concise and contains some degree of flexibility to address almost all types of situation.

Even for accidents involving State aircraft, a number of States have elected to apply Annex 13 rules that have been well accepted by all for decades. An example is the accident of a Tupolev 154M, operated by the Polish Air Force, that occurred on 10 April 2010 when it crashed on approach to Smolensk Air Base in poor visibility. All on board that State aircraft were killed in the accident, including Polish President Lech Kaczynski.

At the end of the consultation process of the draft Final Report, it is not always possible to reach a consensus because the stakes are high, but there is still the possibility to append a dissenting view. From a safety standpoint, this is not desirable but at least it provides feedback and an overall picture on the circumstances of the disaster. For those who want to further improve safety, having some level of information is better than having no report and worries about possible latent/unsolved safety issues. The AIG Panel has addressed the non-publication of Final Reports, which is discussed in the last section of this article.

## 2) National dimension: addressing socio-political crisis at the national level

Accident investigations, especially when dealing with major aircraft accidents, are not only a technical activity, but have to take into account the socio-political crisis context surrounding a major accident. At the national level, numerous institutions are involved and interact with the accident investigation authority in the response to a major accident, in particular the judicial authorities. Annex 13 (Standard 5.10) stipulates that: *"The State conducting the investigation shall recognize the need for coordination between the investigator-in-charge and the judicial authorities."* Depending on each State's organisation, other non-aviation institutions are also involved, such as foreign affairs or ministries of internal affairs, justice, health or defence. A major civil aviation accident represents a national (and international) crisis that goes beyond the domain of civil aviation. Annex 13 activities are often associated to a socio-political crisis with ripple effects on other domains not covered by the Chicago Convention.

The aviation system has already a system in place to cope with tragedies and, more importantly, to prevent the recurrence of a second tragedy, by learning the lessons. This contributes to reassuring the travelling public. With regard to air accident victims and their families, it is impossible to travel back in time before the accident to prevent it, but it is important to underline that safety investigators undertake all possible efforts to prevent recurrence and to inform them about the progress of the investigation. More widely, ICAO developed a policy on assistance to aircraft accident victims and their families (Doc 9998). It contains provisions covering several areas, in particular regarding information about the progress of the investigation and its objective.

When family assistance coordinators and providers are no longer involved in dealing with the aftermath of the accident, the permanent accident investigation authority (AIA) often remains the place where relatives, friends, or descendants turn for answers to their questions, even years after the tragedy.

In a way, the AIA can also be seen as a permanent place to knock on the door for answers – and sometimes some kind of comfort, knowing that the lessons learnt from the accident are still being used in different manners.

## 3) The overarching safety dimension: providing validated feedback to safety actors and paving the way for safety data analysis

As stated previously, accidents and serious incidents are investigated and concluded by Final Reports and safety recommendations. In addition to these reports, the AIAs have generated validated data for safety analysis. By analogy to medicine, it can be said that Annex 13 investigations have evolved from clinical cases to epidemiological studies to strengthen the safety messages. The sharing of information and the management of databases have enabled safety investigators to back their reports and safety recommendations with similar cases.

A recent example discussed within the AIG Panel concerns the new provisions related to the safety recommendations of global concern, which are centralised by ICAO and made available online.

## How is ICAO Annex 13 evolving to contribute to air safety?

Since the seventies, ICAO has established the ADREP (Accident/ Incident Data Reporting) system that provides a comprehensive framework to reuse the findings and conclusions of Final Reports in order to generate safety indicators, through safety analysis and statistics.

ADREP is at the same time:

- the international taxonomy for accidents and incidents;
- a reporting system (Annex 13 - Chapter 7); and
- a central accident/incident database available for ICAO Member States that contains currently more than 42 700 occurrences.

After the 1999 AIG divisional meeting, the Annex 13 prevention measures were strengthened with the addition of a new chapter (Chapter 8) containing provisions on mandatory incident reporting systems, on voluntary incident reporting systems and sustaining a non-punitive environment as well as strengthened provisions on database systems, analysis of data and preventive actions. It also included the exchange of safety information.

A large section of Chapter 8 was later transferred to the new Annex on safety management, Annex 19. It included the key provisions on mandatory and voluntary reporting systems that contributed to paving the way to formalising the Safety Management System (SMS) and State Safety Programme (SSP).

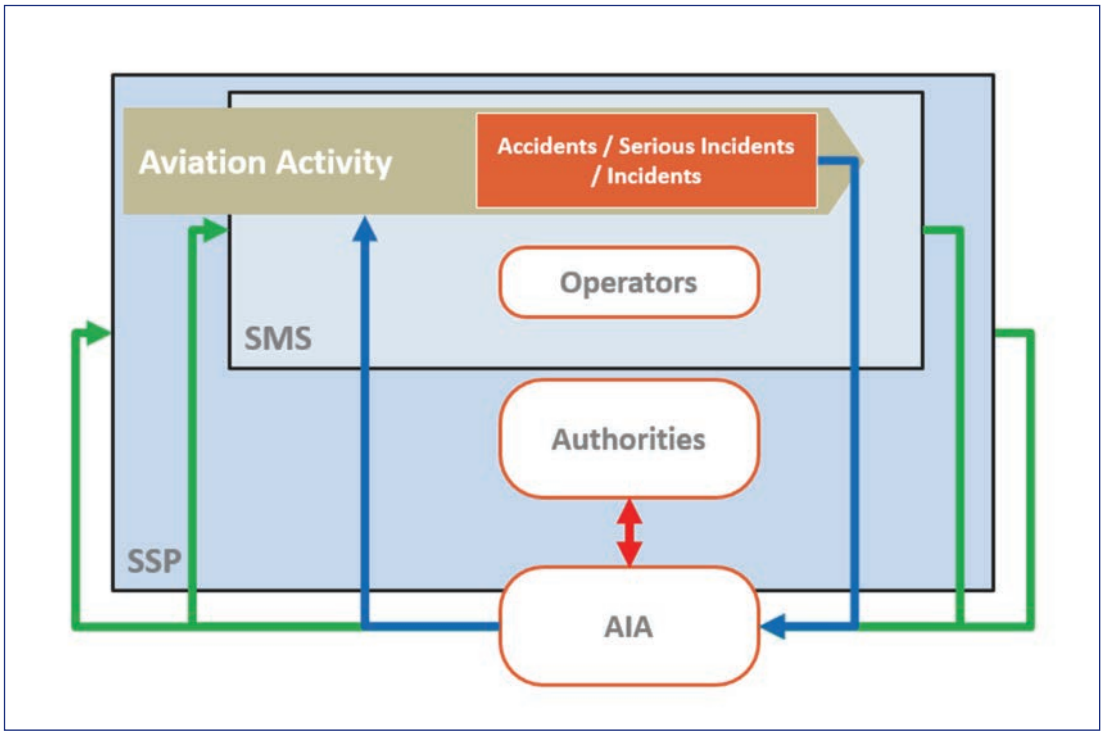
The SMS and SSP have an increasingly important place in the safety considerations of aviation actors. The latter makes decisions taking on board the notion of a hierarchy of risks and the cost effectiveness of each action. At the level of an AIA, this means that to convince stakeholders of the importance of taking safety measures, it is necessary to go beyond simply determining a risk or a failure based on a single event dealt with in one investigation. In certain cases, the investigation must analyse the extent of the problem, quantify it (in terms of frequency or probability) and put it into perspective with respect to other risks.

The complementarity between Annex 13 and Annex 19 is important when it comes to processing incidents, determining serious incidents, and investigating an organisation's SMS. Regarding the positioning of the AIA in relation to the SSP, the following illustration summarises that the AIA is both inside the SSP (contributing with safety data and risk identification) and outside to avoid being tied to priority decisions, in order to remain independent when it comes to investigating these decisions should they play a role in future occurrences.

This graphic illustration also represents the different feedback loops of an Annex 13 investigation. In summary, there are three loops:

1) The AIA investigation is a feedback tool providing inputs for the organisation's SMS and/ or the SSP through its ADREP data, Final Reports and other publications.
2) It is also a formal SSP contribution for risk identification and joint analysis with the other SSP stakeholders (the inside positioning previously mentioned).
3) If relevant, the AIA provides critical examination of involved SSP/SMS through the investigation (the outside positioning), having an unbiased and neutral assessment of the effectiveness of the organisation and procedures of the civil aviation safety system.

This illustration underlines that AIAs do not work in isolation. This



*Participants in the 5th meeting of the ICAO Accident Investigation Panel (AIGP/5), Montreal, 29 April-2 May 2019*

is mirrored by the functioning of the AIG Panel that has worked with the other ICAO panels on a number of topics. For example, both the AIG Panel and the Safety Management Panel (SMP) have been liaising with each other over the years to ensure matching. Likewise, the AIG Panel, thanks to the support of the AIG Section of the ICAO Secretariat, has established links with a number of other groups to ensure that cross-domain topics are well coordinated; for instance, Annex 6 provisions related to flight recorder carriage requirements, and Annex 12 provisions regarding search and rescue, or new provisions on drones in Annexes 6 and 8.

## More recent challenges involving AIAs and addressed by the AIG Panel

This chapter provides a couple of examples of recent topics addressed by the Panel, such as International Cooperative Mechanisms (ICMs) and the timely release of Final Reports. "Security-related accident investigations" represent other challenges that have been present for years, especially since 9/11, with the recurrent question after each accident "is it a terrorist attack?". The AIG Panel has started to clarify the provisions related to the investigation of these security-related accidents as well as to research previous accidents caused by unlawful acts or downing of aircraft. After notifying the appropriate aviation security and police authorities, the AIA should continue the safety investigation, parallel with any judicial investigation, and should complete a Final Report of the occurrence, in accordance with ICAO Annex 13, keeping in mind continued cooperation with the judicial authorities.

### ›› INTERNATIONAL COOPERATION MECHANISM

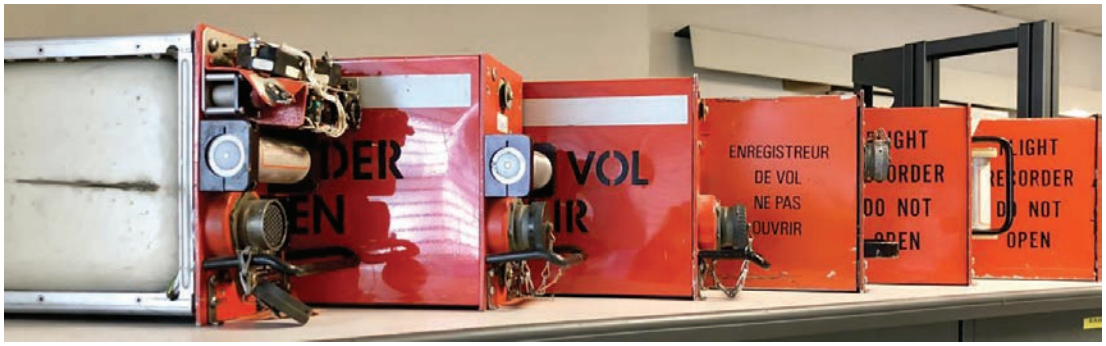
In 2016, Annex 13 was amended (Amendment 15) by notably adding a definition for an accident investigation authority. Standard 3.2 of Annex 13 now stipulates that: *"A State shall establish an accident investigation authority that is independent from State aviation authorities and other entities that could interfere with the conduct or objectivity of an investigation."* Because of the changing regulatory, economic and technical environment, as well as the growing sophistication and complexity of modern aircraft, the conduct of an accident or serious incident investigation requires participation by experts from many specialised technical and operational fields and access to specially equipped facilities for investigation. These resources and assets are not necessarily available in all ICAO Member States or regional investigation organisations.

To resolve this challenge, the AIG Panel has a working group on international cooperation mechanisms to review the RAIO manual (1) and find ways to reinforce the cooperation and delegation mechanisms embedded in Annex 13. The working group has gathered experience from a number of regions and has been mindful to avoid the pitfall of the "one size fits all" solution. It aims to develop a range of solutions that take into account the needs of States in terms of national sovereignty, size, geography, language, etc.

### ›› TIMELY RELEASE OF FINAL REPORTS

The AIG Panel was tasked by the Air Navigation Commission (ANC) to investigate the reasons why a number of Final Reports were not made publicly available and a working group was formed to consider this. It performed a worldwide review of 1157 fatal accidents to civil-operated aircraft with an MCTOM (Maximum Certified Take-Off Mass) of over 5700 kg, between 1990 and 2016. These accidents involved 137 ICAO Member States. The working group went through that list and contacted all

(1) Doc 9946 – *Manual on Regional Accident and Incident Investigation Organization*




States with the support of the ICAO regional officers in charge of safety to enlist their help in contacting the AIAs. To summarise the overall process, the working group managed to further research into the reasons for 59% of Final Reports not being publicly available, and unearthed 80% of reports, while the remaining 20% are still under investigation amongst peers. The AIG Panel continues its works to obtain more answers and to clarify the regulatory context.

The AIG Panel reports on a regular basis to the ANC, which has been closely monitoring this issue. In 2019, this resulted in Amendment 17 to Annex 13, which in particular entitles – in case the State conducting the investigation does not make the Final Report or an interim statement publicly available within a reasonable timeframe – another participating State to initiate a process to release safety information. During the last AIG Panel meeting (AIGP/6), a number of measures were proposed to the ANC to expedite the publication of safety information relating to an occurrence. For example, a proposal to reduce the consultation period, where appropriate, was made along with other measures for the timely and effective release of investigation information, including preliminary and other reports, interim statements and Final Reports. It is crucial to facilitate the flow of safety information to ensure that those involved and/or implicated in the occurrence are kept informed of the progress of the investigation and of the safety deficiencies uncovered. The adoption of such a proactive approach will not only inform the public and stakeholders, but will also reinforce the AIA as the source of authoritative and validated investigative information and help to minimise speculation and rumours.

## Conclusion

The safety investigations into accidents and incidents constitute a fundamental element of the aviation system, materialised by validated data and lessons that are supplied to decision makers, and the issuing of safety recommendations that encourage measures to be taken to improve safety.

The focus of the AIG Panel has always been **safety.** Its work programme has put strong emphasis on the core mission of the accident/incident investigation authorities, which is to conduct independent investigations, to finalise and publish Final Reports, to submit these reports to ICAO and to populate the ADREP database for safety analysis purposes.

The AIG Panel has always progressed thanks to **consensus** amongst its members. It means that the proposals made to the ANC are the result of intense discussions that have considered the issues at stake from all possible points of view. In principle, these proposals to advance safety through investigations are strong and backed by the international community of accident/incident investigators. The AIG Panel has always strived to strike a balance between adding the needed provisions to address our fast-changing environment and keeping Annex 13 concise and flexible so that it remains as the well-known international tool to face international socio-political crises and provide validated data to all. ■

**Olivier Ferrante** has been the ICAO Accident Investigation Panel (AIGP) chairperson since 2018. He has worked in the field of safety investigations since 1999, initially at the BEA (France), with secondments at TSB Canada, the United States FAA and at the European Commission in the aviation safety unit. Between January 2012 and July 2016, he followed up the implementation of the European rules on the investigation and prevention of accidents and incidents in civil aviation (Regulation (EU) No 996/2010). In particular, he worked on the establishment of the European Network of Civil Aviation Safety Investigation Authorities (ENCASIA).

Mr Ferrante is currently responsible for managing and developing the BEA strategic plan, which aims to address the new safety investigation challenges. He is also the president of the European Society of Air Safety Investigators (ESASI). He holds a master's in aviation engineering from the French National Civil Aviation School (ENAC), a graduate certificate from the McGill Institute of Air and Space Law (IASL), and a pilot's licence.

# New regulations on UAS and their impact on safety investigations

**Thomas Oster**
*Project Manager – Drones, EASA*

Aviation, seen in the broader definition encompassing all its technologies in the air and on the ground as well as all supporting services such as air traffic control, took over a century to develop and evolve. As increases in traffic and new technologies and procedures were implemented, measures were taken in step to ensure the highest possible level of safety. This approach allowed a very low accident rate to be achieved.

This was made possible through a detailed examination of the events leading to incidents and accidents, by identifying the possible causes and problems that preceded such events, and by defining mitigation measures to prevent such cases repeating in the future. Operational procedures were improved, technical issues were identified and then corrected through product modifications. The analysis was based on detailed information about these events gathered through occurrence reporting from operators, pilots and other persons involved. The safety investigations that followed these reports were established and then improved over time.

The basis for such reporting stems from the international standards and procedures for safety occurrence reporting and investigation described in ICAO Annex 13 – *Aircraft Accident and Incident Investigation and Doc 9756 Manual of Aircraft Accident and Incident Investigation*. Definitions of serious incidents and accidents in aviation are included in ICAO Annex 13.

The European Union established a corresponding regulatory framework. The EASA (European Union Aviation Safety Agency) Basic Regulation (EU) 2018/1139 serves as the foundation for this, supported by three regulations on investigations and occurrence reporting: Regulation (EU) 996/2010 serves as the EU version of ICAO Annex 13, Regulation (EU) 376/2014 for reporting, analysis and follow-up of occurrences in civil aviation, and Regulation (EU) 2015/1018 defines how to classify occurrences, laying down the rules for occurrence reporting.

© Magann

## Unmanned aircraft systems as new entrants in the airspace

Roughly a decade ago, unmanned aircraft systems (UAS), which were formerly a military domain, became more and more prominent in the civil community, offering a huge potential for many different applications of the technology. The European Union recognised this new development and adopted two regulations, known as the UAS regulations: (EU) 2019/945 and (EU) 2019/947. They apply an operational-centric approach by defining three categories of operations (the "open", "specific" and "certified" categories) and they establish a legal basis to enable a free, competitive market. This market covers a very wide range of activities, from leisure flying activities, to professional applications – where UAS are used to simplify and optimise work areas such as civil engineering for infrastructure investigation, farming, transport of medical products and border control – right up to the transport of people. The number of these use cases as well as the number of UAS flying in the same airspace is gradually increasing.

As an observed fact, the increased fleet size of aircraft – either manned or unmanned – using the same airspace at the same time is causing an escalation in the number of occurrences. If the situation is not managed properly, it is likely to result in dangerous encounters or even accidents. Therefore, as described earlier for manned aviation,

> "As an observed fact, the increased fleet size of aircraft – either manned or unmanned – using the same airspace at the same time is causing an escalation in the number of occurrences. If the situation is not managed properly, it is likely to result in dangerous encounters or even accidents."

detailed information needs to be gathered for analysis, to identify possible causes and to define mitigation measures.

Reusing the procedures defined for manned aircraft as much as possible for occurrences with unmanned aircraft was a pragmatic approach. However, adaptation and implementation of new principles and even tools for these new cases is necessary.

EASA has therefore included an objective to support adequate occurrence reporting within its Counter-UAS Action Plan. Major areas of work are required to define high-level definitions of air proximities (AIRPROX) and airspace infringements, to assess existing occurrence reporting procedures, and to develop an action plan to integrate UAS in common occurrence reporting procedures.

This work takes account of the results of an activity by the Network of Analysts, which established a working group to provide a report giving an overview of the current situation with respect to definitions, requirements and the current taxonomy used in reporting systems, as well as to propose a set of solutions to address the issues identified and to foster improvements in the reporting process.

The overall aim of the activities conducted by EASA and the Network of Analysts is to provide the community with a set of definitions for the required areas, to change proposals on the current taxonomy, to define a subset of attributes used to improve occurrence reporting for the UAS operators (irrelevant of operation class), and to draw up an action plan describing necessary steps to integrate unmanned aircraft in common occurrence reporting procedures.

## How do new regulations impact safety investigation?

Starting at the global level, it should be noted that the definitions for serious incidents and accidents in aviation that are included in ICAO Annex 13 already accommodate unmanned aircraft systems. Further, in chapter 5 it is defined that: *"In the case of investigation of an unmanned aircraft system only aircraft with a design and/or operational approval are to be considered."*

At European level, this was transposed in the EASA Basic Regulation (EU) 2018/1139, which defines that reporting and safety investigation are applicable to all UAS operations when a person has been fatally or seriously injured or a manned aircraft is involved. However, all other events (e.g. even in a case where no person is injured) need to be reported, as for manned aviation, when a Type Certificate [(1)] for the UAS is mandatory (i.e. operations in the certified category or in the high risk of the specific category). Voluntary reporting is always possible and welcome.

EU Regulation 376/2014 on the reporting, analysis, and follow-up of occurrences in civil aviation supplements the Basic Regulation and in addition leaves it to Member States to decide to also apply this Regulation to occurrences and other safety-related information involving the aircraft, to which EU Regulation 2018/1139 does not apply.

With respect to occurrence reporting, the Acceptable Means of Compliance (AMC) associated with this Regulation states that UAS, like all aircraft, are subject to accident investigations and occurrence reporting schemes. Mandatory or voluntary reporting should be carried out using the reporting processes provided by the competent authorities.

At a minimum, the Standard Operating Procedures (SOPs) should contain:

- reporting procedures in case of: (1) damage to property; (2) a collision with another aircraft; or (3) a serious or fatal injury (third parties and own personnel);
- documentation and data-logging procedures: describe how records and information are stored and made available, if required, to the accident investigation body, competent authority, and other government entities (e.g. police) as applicable.

In the regular update of this AMC and guidance material, a new indicator was introduced to monitor and evaluate UAS rules. This indicator is for monitoring occurrences, incidents, and accidents involving UAS that conduct beyond-visual-line-of-site (BVLOS) operations over a populated area and an assembly of people, and implies that a minimum set of information on the UAS involved in the occurrence, incident or accident will need to be reported.

Finally, in relation to UAS, the latest regulations are the three regulations of the U-space regulatory package published in April 2021.

The following regulations provide the framework for U-space

(1) A Type Certificate issued by EASA according to Regulation (EU) 748/2012 referred as Part 21

© Grejak

operation: Regulation (EU) 2021/664 on a regulatory framework for the U-space, Regulation (EU) 2021/665 amending requirements for providers of air traffic management/air navigation services and other air traffic management network functions in the U-space airspace designated in controlled airspace, and (EU) 2021/666 amending Regulation (EU) No 923/ 2012 as regards requirements for manned aviation operating in U-space airspace.

The purpose of U-space airspace is to prevent collisions between aircraft and to mitigate the air and ground risks. Therefore, the U-space regulatory framework, supported by clear and simple rules, should permit safe aircraft operations in all areas and for all types of unmanned operations.

U-space is meant as a set of services provided in an airspace volume designated by the Member State to manage UAS operations in a safe and efficient manner. The aim of the U-space services is to provide the UAS operators with information about where and how high they can fly, the status of the airspace volume in which they intend to fly, information about other traffic (including manned aviation) that may be conflicting with their planned trajectory/mission, and weather information such as wind. Furthermore, the aim of the U-space services is to support the UAS operators by processing their flight authorisation requests.

“The purpose of U-space airspace is to prevent collisions between aircraft and to mitigate the air and ground risks. Therefore, the U-space regulatory framework, supported by clear and simple rules, should permit safe aircraft operations in all areas and for all types of unmanned operations.”

The framework regulation requires U-space service providers (USSPs) to provide occurrence reports “in a form and manner established by the competent authority”. Therefore, it is recommended that event types covering different hazards/failures of U-space services are added to the European Coordination Centre for Aircraft Incident Reporting System (ECCAIRS) taxonomy. This requires identifying those event types and developing adequate definitions and explanations for use in ECCAIRS. The future AMC and guidance material will introduce indicators for monitoring and assessment of the U-space regulation, and for monitoring occurrences, incidents, and accidents involving UAS which conduct operations in U-space airspaces.

## What are the next steps?

Occurrence reporting related to infringements of airspaces/geographical zones established for the purpose of protecting privacy rights of the inhabitants is not considered relevant for aviation and needs to be handled by law enforcement authorities, since such cases are not in the remit of the aviation safety organisation.

The current occurrence reporting regulation does not define all the UA-related occurrences. Proposals to the European Commission on the relevant U-space occurrences to be reported need to be made.

Regulation (EU) 2015/1018 requires updating with respect to UAS-related attributes. Work on the coding guidance for Regulation (EU) 376/2014 has started.

The ECCAIRS taxonomy needs to be updated with event types covering different hazards/failures of U-space services.

# New regulations on UAS and their impact on safety investigations

© Braslinut

> “ Furthermore, an interface between remote pilots and the ECCAIRS reporting system is needed. A suitable solution may be smartphone applications. ”

Furthermore, an interface between remote pilots and the ECCAIRS reporting system is needed. A suitable solution may be smartphone applications. The aim is to make the reporting both simpler and more effective for UAS remote pilots by designing a set of attributes for reporting that can be augmented and/or interfaced in the background to the taxonomy, resulting in a higher rate of completed attributes and better-quality reporting with minimal effort by the reporting pilot. This work would in the end benefit general aviation pilots as well.

The current reporting portal with a full interface of attributes is not ideal for the general public and users of UAS in the open category since they lack the necessary detailed knowledge. Even the Reduced Interface Taxonomy is probably too complex for many UAS operators in the specific category. A simplified way of reporting occurrences with UAS based on a simple interface that minimises the user’s input is therefore needed. Restricting the initial reporting of UAS occurrences to a minimum set of data will most likely have a positive impact on the reporting culture of the UAS sector.

It would also assist manufacturers in setting up an automated reporting module in their UAS software for automatic logging of data related to UAS occurrences. It will enable UAS operations management software developers to integrate a simplified type of manual reporting in tools for UAS operators and remote pilots. Once the initial reporting form for the UAS occurrence is received by the competent authority, this form may even be imported in ECCAIRS automatically, resulting in less effort required to enter data.

The data collected through these mechanisms will aid in analysing all areas of UAS operations. As a starting point for this new area, we are fortunate in having systems for manned aviation that have developed over the years. But it is clear we do not have the luxury of a gradual development, as happened in the past. Time is of the essence to ensure that the aviation standards which are well established in the manned arena can also quickly be adopted for unmanned traffic. ■

**Thomas Oster** has a background as a communications technology engineer. A retired officer of the German Air Force, he joined the EUROCONTROL agency in 2005 and was working as a senior military surveillance expert until June 2019. Mr Oster was then seconded to the European Union Aviation Safety Agency. In his current role, he is supporting the integration of unmanned aircraft systems (UAS) into the airspace and is in charge of aspects related to UAS geographical zones. He is also involved in various standardisation activities and works on several aspects of counter-UAS, including occurrence reporting related to incidents involving UAS.

# EUROCONTROL, Flight Safety Foundation and partners target runway excursion prevention

**Tzvetomir Blajev**
*Operational Safety Coordinator, EUROCONTROL*

Runway excursions are the most frequent type of accident in aviation and are regularly identified as one of the most serious risks for large and small aircraft. The rate of runway incursions in the world has not been reduced significantly in the last years. A study of incident and accident data conducted by the International Air Transport Association (IATA) in support of the Global Action Plan for the Prevention of Runway Excursions (GAPPRE) development process found that between 2005 and the first half of 2019, 23 per cent (283) of accidents in IATA's global accident database involved a runway excursion.

Runway excursion is one of the top three key risk areas for large aeroplanes, as defined in the European Union Aviation Safety Agency (EASA) Annual Safety Review 2021. Runway excursion events are one of the most economically significant safety events. Safe-Runway GmbH, a Switzerland-based consultancy, estimates that the direct cost of runway excursion events was more than US$4 billion in 2019.

Runway excursion risk is a complex combination of factors involving different aviation segments. Addressing the risk can only be done in sync and collaboratively. Runway excursion risk and resilience management relies on a system of tightly coupled factors for success, dependent on a joint and coordinated effort of all the aviation players. The complexity of runway excursion prevention efforts is derived from the fact that the effect of the risk and resilience factors is highly cumulative – runway condition maintenance and reporting, aircraft performance and operations, collaborative approach path management and adherence to robust policies for safe descent and approach planning, stabilised approach, safe landing and go-around all play roles.

Runway excursions are a jointly owned risk that requires joint solutions. The industry came together, within a dedicated working group, to discuss and agree on what are the most important actions to address the runway excursion risk. Because of the complexity of the risk factors, preventing runway excursions requires coordination among and commitment of numerous stakeholders, notably aircraft operators, air navigation service providers, aerodrome operators, aircraft manufacturers, regulators, research and development establishments.

© hkratky

The GAPPRE was developed over two years by an international team of more than 100 aviation professionals from more than 40 organisations divided into six working groups. The working groups were led by representatives from IATA, Civil Air Navigation Services Organisation (CANSO), the United Kingdom Civil Aviation Authority, Gulfstream, Paris Charles de Gaulle Airport and the Royal Netherlands Aerospace Centre (NLR). The work was coordinated by Flight Safety Foundation and EUROCONTROL. GAPPRE was reviewed and validated by EASA, IATA, CANSO and Airports Council International World. The release of the GAPPRE in 2021 demonstrates the industry's commitment to preventing runway excursions. The GAPPRE is truly a "from industry for industry" initiative.

The GAPPRE is based on a rarely seen consensus by the global aviation industry. Major aircraft manufacturers agreed on specific common technology; airlines with diverse business models agreed on best practices; and EASA and the United States Federal Aviation

## EUROCONTROL, Flight Safety Foundation and partners target runway excursion prevention

© Monet-M

Administration (FAA) aligned with the industry on regulatory recommendations.

The development of the GAPPRE recommendations was based on the following principles:

- Provide recommendations that address actions beyond regulatory compliance – the recommendations in this action plan are not exhaustive in managing the runway excursion risk and resilience. It is fundamental that organisations be compliant with international, regional and national rules and regulations.
- Recommendations based on consensus – consensus was reached on each recommendation in the action plan during the drafting and the subsequent validation process.
- Embrace further data analytics – suggest to actors to make better use of existing data and fuse and analyse larger volumes of heterogeneous data.
- Address both longitudinal and lateral runway excursions.
- Include runway excursion mitigations.
- Promote technology embedded in systemic solutions – promote technological solutions that are clearly integrated with respective training, procedures, standardisation, certification and oversight.
- Provide research and development recommendations for issues with clear potential high-risk mitigation benefits but without maturity for implementation within the following ten years.
- Promote a set of selected, proven solutions that are not yet "standard" (not used by all stakeholders) but that have been proven to be effective in reducing the risk of runway excursions, based on data analysis and lessons learnt.
- Provide functional recommendations – leave the design of a specific implementation solution to the industry.

The GAPPRE offers an unmatched set of recommendations for different time horizons – some can be implemented immediately, and some may require up to ten years for technology maturation and implementation. The GAPPRE creates a robust roadmap for the industry to reduce the risk of runway excursions.

With the release of the action plan, EUROCONTROL and the Flight Safety Foundation launched a campaign to focus attention on runway excursion risk and support implementation of the consensus-based GAPPRE recommendations. Runway safety and the GAPPRE will be regular themes at EUROCONTROL and Foundation-organised events. ■

**Tzvetomir Blajev** is EUROCONTROL's operational safety coordinator. He is responsible for EUROCONTROL's safety action plans, prioritising the top five safety risks, performing operational safety studies and managing the partnerships for SKYbrary. He also serves as the director Europe and Global Operational Safety at Flight Safety Foundation. On behalf of the Flight Safety Foundation, an international non-profit organisation founded in 1947 with over 1000 members from 150 countries, Mr Blajev leads regional strategy development and implementation. At the beginning of his career, he worked as an air traffic controller, ATM procedures designer and head of safety and quality for an air navigation service provider. Mr Blajev holds an MSc in aeronautical engineering and an MBA.

# The impact of the COVID-19 pandemic on air safety investigations

**Crispin Orr**
*Chief Inspector of Air Accidents, Air Accidents Investigation Branch (AAIB), United Kingdom, and Chair of the ECAC Air Accident and Incident Investigation Group of Experts (ACC)*

## Introduction

It is difficult to overstate the impact the COVID-19 pandemic had on the aviation industry, with public health restrictions affecting both recreational and commercial flying activity. The disruption to the once-stable aviation "ecosystem" introduced new pressures and safety risks, and it was no surprise that accidents and incidents continued to occur. But the pandemic also posed significant challenges for the safety investigation authorities (SIAs) whose role it is to investigate accidents and serious incidents. This article will explain how ECAC SIAs maintained their operational effectiveness and found ways to continue their important work in a safe and appropriate manner.

## Approach

Air safety investigations are conducted in accordance with Annex 13 to the Chicago Convention. They are inherently international and may involve accredited representatives (AccReps), advisers and experts from several States assisting the SIA of the State of Occurrence who normally leads the investigation.

SIAs are well-trained and equipped to operate in challenging and hazardous environments. They found that during the pandemic, almost anything could be done but some things needed to be done in a different way. Most SIAs successfully adopted a conventional risk management approach: identifying the hazards, putting in place mitigations to minimise the risks, determining if the residual risk was acceptable, and making decisions accordingly. As the situation constantly changed, an agile approach was required.

> "SIAs are well-trained and equipped to operate in challenging and hazardous environments."

## Maintaining operational readiness

The first challenge was to establish a safe and secure base from which to launch and sustain investigations, even when some staff were required to work from home. Suffice to say SIAs put in place measures to establish "COVID-secure" workplaces in accordance with government and World Health Organization guidelines.

The provision of health and wellbeing support to staff was more critical than ever, and some found it useful to segregate staff into separate teams to limit mixing. SIAs protected their freedom to operate by ensuring their staff were designated as "critical safety workers".

SIAs found that staff could do much of their routine work from home if they had dependable communications and IT equipment. New ways of working were quickly developed, and care was taken to ensure that tasks could be conducted in a secure and confidential manner.

SIAs were already well equipped with appropriate personal protective equipment (PPE) for operations in the field in hazardous environments, but they reviewed their procedures and adapted them for the pandemic situation.

## Notification and deployment

Following notification of an accident or serious incident, detailed planning and preparation was required more than ever to ensure a successful deployment, as there were additional obstacles to overcome. Although some contingency planning was beneficial, specific deployment plans had to be developed for each case at the time.

There was increased reliance on the host nation (State of Occurrence) to help facilitate the deployment of AccReps and advisers

> "The provision of health and wellbeing support to staff was more critical than ever."

from other States. SIAs used their contacts and influence across government departments to help expedite the issuing of visas and secure exemptions from quarantine requirements.

Travel options were more limited than normal, with increased reliance on self-drive vehicles and aircraft charter when necessary. Deploying personnel had to be prepared for country-specific requirements such as carriage of additional travel and health documentation. It was sometimes a challenge to get COVID test results before departure given the no-notice nature of accident investigation deployments.

Many hotels were closed and there was increased reliance on the local authorities to help secure alternative accommodation. Access to food could also be problematic, particularly at the unsocial hours that investigation teams often need feeding.

## At the accident site

The physical assessment of the wreckage at the accident site was conducted in the normal way. By maintaining high levels of hygiene and the correct use of PPE, investigators were well-protected from both COVID-19 and the arguably greater risks posed by blood-borne pathogens and the material hazards often present at accident sites.

Accident site scenarios vary widely. Whilst general aviation accident sites in rural locations posed no abnormal risk during the pandemic, commercial air transport incidents at major airports exposed investigation teams to a larger number of people. The most challenging scenarios were major air transport accident sites in populated areas, with hundreds of people on the site and limited control over them.

© UK AAIB

## Alternatives to deploying

Every deployment had to be assessed case-by-case and if the risks were high, alternatives to deploying were considered. Increased use was made of local authorities and trusted agencies to gather and secure the physical evidence for assessment later. Interviews were often conducted remotely via phone or video conference. Increased use was made of transmitted photos and video to enable SIA investigators and advisers to get "eyes on" the evidence to assess it and direct the action to be taken.

> "Increased use was made of transmitted photos and video to enable SIA investigators and advisers to get "eyes on" the evidence."

It was not always necessary for AccReps, advisers and experts to travel to the State of Occurrence. During the pandemic, maximum use was made of non-travelling AccReps to supervise investigative work conducted in their locality. SIAs also had to consider arrangements that would enable manufacturers to support the investigation with less direct supervision than normal but with the SIA maintaining overall control to safeguard the independence of the investigation activity.

© BEA

## Subsequent investigation

Whilst the field phase of an investigation tends to be relatively short in duration, the post field phase can last for months, and raises its own challenges.

Investigators-in-charge had to consider how to create and sustain an effective team when there was limited face-to-face contact. Activities had to be coordinated through other means and best use made of collaborative tools. During the pandemic, there was inevitably more friction within the process, which caused delays. Investigation management had to be more proactive than normal to keep things moving forward.

Interviews can be conducted remotely but there are limitations with this approach as the investigator has to build a rapport and gain the trust of the witness. Some sensitive interviews just had to be conducted face-to-face and the risks minimised by using a well-ventilated location, maintaining social distance, etc.

It was sometimes necessary to transport flight recorders to a suitable laboratory in a foreign State to recover and analyse the data. Options used included hand-carrying the recorders directly to the laboratory; taking them to an exchange point at the port-of-entry where they could be handed over to a representative from the SIA conducting the readout; or sending them by secure courier.

In the laboratory, care was taken to limit the number of people in the room, but a wider group could observe proceedings via a live video link from a separate room.

When a detailed examination of components was required, SIAs had to be creative to work around any travel constraints. Annex 13 protocols were used to access overseas technical support through AccReps and advisers and make best use of manufacturers' global support networks.

During an investigation, SIAs often draw on long-established relationships with the operator and manufacturer's safety teams. But during the pandemic, some of those staff were not available or even still in place. Greater effort was required to establish channels of communication and more time was sometimes required to get a response to requests for information. The hollowing out of some safety teams also meant that company's internal investigations could be slower or less effective; or not happen at all if the company had ceased to operate.

> "When a detailed examination of components was required, SIAs had to be creative to work around any travel constraints."


© BEA

## Post investigation activities

Report preparation generally proceeded as normal but additional time was sometimes required when investigators were subject to lockdown restrictions. The report preparation process was very dependent on good communications and exploitation of collaborative working IT tools.

At the conclusion of the investigation, it was possible to carry out some briefings using remote communication tools. However, a face-to-face meeting is always preferable when briefing the bereaved and special arrangements were often required to achieve this during the pandemic.

## Sustaining the capability

The long duration of the COVID-19 pandemic tested everyone's resilience. Staff had to cope with a variety of individual concerns and challenges in their domestic situations and individuals coped in different ways. SIAs provided a lot of practical support and assisted staff greatly by adjusting individual working arrangements. Additional effort was required to maintain good communications, internally and externally with stakeholders, and this was more important than ever. Wellbeing and trauma risk management programmes were important but, above all, good leadership was required to maintain staff morale and engagement in difficult and uncertain times.

## Positive outcomes

The pandemic proved to be a catalyst for innovation and the rapid development of new ways of working that might otherwise have taken decades to progress. Whilst certain types of collaboration and networking are undoubtedly better conducted face-to-face, many were surprised by how much could be achieved with just a phone, a laptop and a stable internet link.

The international collaboration required by Annex 13 was achieved in different ways and the Annex 13 protocols really helped SIAs to progress investigations throughout the pandemic.

## Return to the office

As vaccinations have been rolled out and restrictions lifted, there has been a progressive return to the office and more traditional ways of working. However, SIAs have strived to capitalise on the positive developments of the last two years and incorporate the new ways of working into their long-term arrangements where beneficial. There are very mixed views on this with some relishing the opportunity to interact with colleagues in the office environment and others being rather more appreciative of the benefits of working from home. A balance must be struck, and many SIAs have retained some flexibility for staff to spend some of their time working from home, as well as in the field and in the office, with hybrid working practices becoming commonplace.

## Observations

So, after two years of pandemic, what have the safety investigations revealed?

The suppression of general aviation (GA) activity during the lockdowns was very temporary and merely led to an extension of the normal seasonal variations in the volume of GA accidents and incidents.

> “ SIAs did investigate some occurrences which were directly or indirectly linked to the effects of the pandemic. ”

The reduction in air travel was more sustained and reduced the demand for international investigations into commercial air transport occurrences. However, this reduction was not as large as might be expected, perhaps reflecting the additional risks associated with the restart and regeneration of capacity. These risks received a lot of attention from regulators, industry-wide bodies and individual companies. The absence of a big surge in occurrences during the restart indicated perhaps that the risks were generally well-understood and well-managed by the industry. The slow rate of recovery probably also helped in some respects.

However, SIAs did investigate some occurrences which were directly or indirectly linked to the effects of the pandemic. For example, some equipment failures were associated with the aircraft being on the ground for a protracted period. And several occurrences were linked to aircrew layoffs and lack of practice, including some mishandled approaches, take-offs, landings and go-arounds.

Whilst the above was expected, there have also been some unexpected effects such as changes to the environmental conditions at airports, due to the reduction in aviation activity, leading to changes in wildlife and insect activity. In one case, this resulted in a series of rejected take-offs at a major international airport due to bees nesting in pitot tubes leading to problems with airspeed indications!

## Concluding remarks

The COVID-19 pandemic has presented enormous challenges for the aviation industry. Although there has been less flying, accidents and incidents have continued to occur and had to be investigated. SIAs are used to working safely in hazardous environments and adept at overcoming new challenges. They adapted quickly to the pandemic, finding new ways to complete their investigations, whatever the obstacles. Some investigations took more time to complete, but overall SIAs were successful in reducing the backlog of ongoing investigations. They are now adapting to the situation where the virus is still prevalent but the risk it poses is much reduced due to vaccinations. SIAs have learnt from the experience of maintaining operations during the pandemic and have emerged stronger, with new tools, techniques and approaches ready to face whatever the next strategic challenge might be. ■

**Crispin Orr** joined the United Kingdom Air Accidents Investigation Branch as chief inspector in January 2017 following a career in the army including senior appointments as an aviation commander and head of flight test and air accident investigation units. In 2015, he established and was the first head of the Defence Accident Investigation Branch.

He is an active member of the ICAO Accident Investigation Group Panel and in 2020 was appointed as chair of the ECAC Air Accident and Incident Investigation Group of Experts (ACC).

Mr Orr has an engineering degree from Durham University and an MSc in defence technology from Cranfield University, as well as postgraduate qualifications in safety and accident investigation. He is a member of the Royal Aeronautical Society and the Society of Experimental Test Pilots.

# Handling and developing investigators' competencies at the BEA

**BUREAU D'ENQUÊTES ET D'ANALYSES POUR LA SÉCURITÉ DE L'AVIATION CIVILE (BEA)**

*From the top and from left to right:*
**Rémi Jouty,** *Director*
**Johan Condette,** *Head of Investigation Department*
**Sébastien David,** *Senior Safety Investigator*
**Nicola Gawthorpe,** *Language Advisor*
**Philippe Plantin de Hugues,** *Advisor on International and Regulatory Affairs*

**This article explains how the competencies of individual investigators at the BEA are based on a mix of in-house theoretical training and on-the-job training, which is facilitated by the number of investigators at the BEA and the amount of activity, both domestic and abroad. In addition, the article describes the tool implemented by the BEA to both standardise investigation procedures, working methods and practices, and to share individual experiences to increase the overall level of competency. The content of this tool is the result of collective contributions at all levels of the BEA.**

As of 31 December 2021, the BEA had 92 members of staff including 60 investigators. Most of the BEA investigators joined the BEA at a relatively young age, having previously followed academic studies to a high level including extensive training in aviation safety matters. The turnover of safety investigators at the BEA is relatively low (about 5% per year).

Each year, the BEA initiates between 120 and 150 investigations in France and participates in about 200 investigations initiated abroad, in many cases as the accredited representative of the State of Manufacture and/or the State of Design. The structure of BEA investigation teams, composed of a mix of senior and new/young investigators acting as either investigator-in-charge (IIC), accredited representative (AR) or team members, facilitates the on-the-job training (OJT).

The BEA's investigators start their career as a first-level investigator. Their on-the-job performance is developed using a competency-based approach with a mix of initial academic training, in-house theoretical training and OJT enabling them to evolve to second level and up to fifth level after showing satisfactory compliance with all the requirements. This is possible and is facilitated by the number of safety investigators at the BEA and the amount of activity, both domestic and abroad. However, the following issues also need to be addressed:

1) The standardisation of investigation procedures, working methods and practices.
2) The sharing of individual experiences to increase the overall competency level.

A wiki-based tool in which procedures (both technical and administrative), good practices and technical references are documented and cross-referenced has been developed to address these issues. This tool is based on the same IT system and community development as the famous Wikipedia but is dedicated to BEA staff only. This article details how this tool has been developed and is used/updated by users, and its advantages over traditional investigator manuals and technical documents.

## In-house investigator training

Safety investigator training at the BEA is progressive and based on a phased approach as recommended by ICAO Circular 298 and the enhancements proposed by a specific ICAO Accident Investigation Panel (AIGP) working group with the remit to develop competency-based training for investigators. BEA investigators receive training according to their particular role and commensurate with their responsibilities as an accident investigator, group leader, IIC or AR.

The BEA has developed two in-house training programmes. The first training programme, carried out in French, is designed for new investigators prior to them becoming involved in an accident investigation, and for field investigators, frequently dispatched by the BEA to the scene of an occurrence. The field investigators are DGAC (French civil aviation authority) staff posted in the different metropolitan or overseas services of the DGAC. As field investigators, after an occurrence in their assigned area they are required to collect initial evidence on-site under the control of the BEA IIC.

This first training programme provides participants with a comprehensive overview of the methods and skills to investigate a general aviation (GA) accident.

The second training programme, given in English, is a Commercial Air Transport Safety Investigation course and is designed for BEA safety investigators with a few years of prior practical experience of GA investigation. Over the last few years, this training has been opened up to foreign aviation safety investigators as well as to aviation professionals (from manufacturers, operators, pilot unions) who may participate in major safety investigations. It notably covers regulatory aspects of safety investigations, the conducting and the management of safety investigations (site hazards, collection of information, analysis methodology, coordination within the investigation team and with external organisations, etc.) and communication challenges. In addition to the technical information provided in the context of a commercial air transport (CAT) investigation, the aim is to also share information and give participants from different backgrounds the opportunity to exchange with each other. The training is given by highly experienced active BEA investigators with case studies based on up-to-date practices and hands-on experience and the use of "blended learning" (classroom session enriched by e-learning) to increase learning effectiveness and the involvement of the participants. It is expected that after completing this module, the attendees will be able to manage or contribute to safety investigations into commercial air transport occurrences. All the training support material is available on the BEA wiki pages for the safety investigators.

Through this combination of in-house theoretical training and OJT, BEA investigators consolidate the information and the techniques learnt and acquire the competency (knowledge, skills and attitudes) in line with their role and responsibilities.

## In-house BEA wiki basics

The BEA wiki was initially implemented back in 2013 for the engineering department, in the flight recorder laboratory, to group lab best practices by domain. From the beginning, the wiki was open to all the BEA staff. Any lab investigator could create a wiki page, collect and share new knowledge acquired during the examination performed (i.e. how to disassemble a recorder, tips and good-to-know information, knowledge about the system's operation, etc.). It proved to be a great way of driving an investigator's implication as well as developing mentorship relationships between young and experienced staff members and between frontline investigators and senior leaders.

It was then decided to enlarge the use of the BEA wiki to the rest of the staff in the engineering, investigation, and communication departments and in high-level management, to more globally capitalise on the standardisation of procedures, working methods and best practices and benefit from the diverse individual experiences and personalities of its personnel.

About 1620 wiki pages, broken down into two types, have been developed:

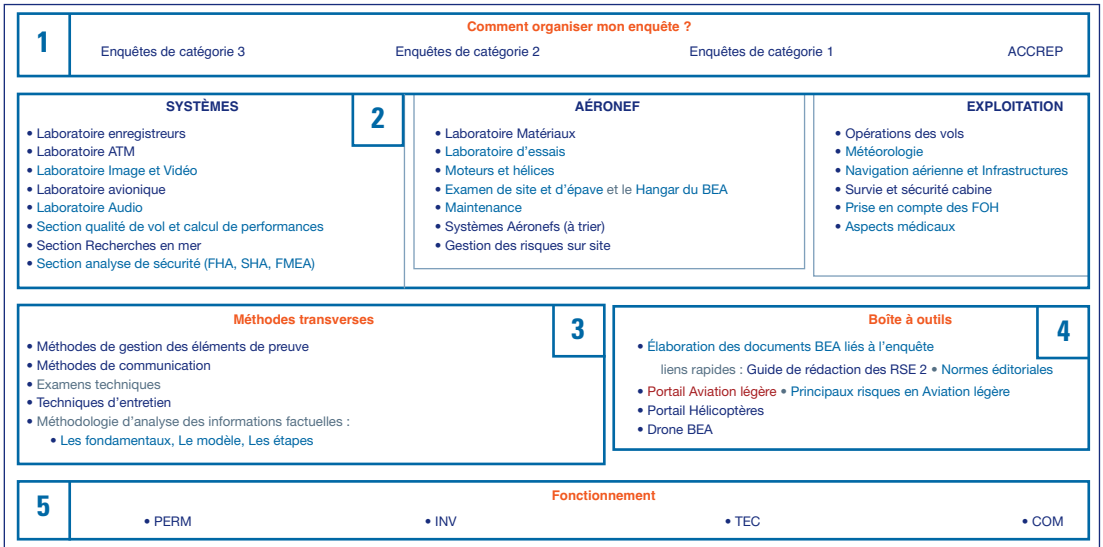
- 420 **Methods** pages, which include methods and procedures to be used by the BEA investigators in day-to-day activities,
- 1200 **Knowledge** pages, which refer to technical information, practical information and good practices not related to formal procedural matters.

The wiki **Welcome page** permits access to all the various wiki pages as indicated in Figure 1.

The BEA wiki pages include the procedures used by the BEA investigators in day-to-day activities. When the BEA wiki pages include links to documents (national, European or international regulatory references, technical documents), these documents are stored on an associated internal electronic library.

In order to ensure the quality management of the wiki, it was decided to implement privileges and responsibilities:

- **User:** they can create a page by means of a form which indicates the validator, topics, etc. The policy drafter selects the desired validator (it tells you how high in the organisation the "method" was validated; often a member of senior management). All users can create or modify a wiki page. A dedicated wiki help page has been created with the main tools to easily create or modify a wiki page for users.
- **Topic owner:** topics are listed with the subject owner explicitly stated. The topic owner oversees the updating of the knowledge, verifies the knowledge, and formats the knowledge and procedures, and is responsible for validating the knowledge pages.
- **Senior management:** deeply involved in the review of major procedures. Policy instigation and




*Wiki* **Welcome page** *(Page accueil) with various entries:*

**What's new?** *section giving information about the latest major changes to the wiki, for quick and easy access:*

1. *by investigation process (accredited representative, limited investigation, major investigation),*
2. *by investigation activities/topics (system, operations, wreckage groups, writing process, training courses, etc.),*
3. *transverse methods (interviews, communication at investigator level, etc.),*
4. *by portal topic (helicopter, general aviation, human factors, drones, etc.) and toolbox for writing documents,*
5. *by functions (on-duty investigators, investigation, engineering, communication).*

**Figure 1** – *Details of the wiki* ***Welcome page***

revisions are driven both top down and bottom up.

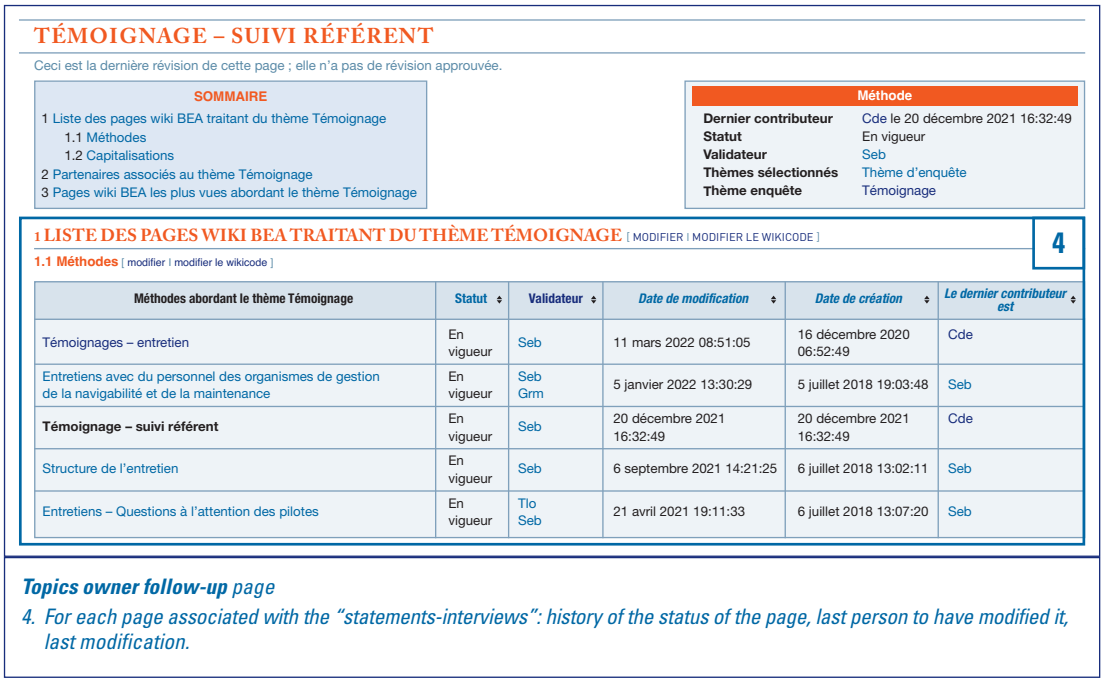
- **Audit manager:** oversees the BEA's compliance with the various audit programmes. Checks and verifies the pages and documentation associated with each Protocol Question (PQ).

Policy creation/changes are all done through the wiki platform; the platform will notify stakeholders [drafter/validator] of edits with side-by-side comparison. The topic owner is also informed.


*Wiki page:* ***Statements-interviews*** *(témoignages-entretien):*

1. *List of procedures (background information, how to perform the interview, questions to be raised, etc.).*
2. *Information on the method page (last contributor, page status (in progress, in force), validator, last review, related topics (= category), ICAO PQ linked to this page).*
3. *View of history (see Figure 3).*

**Figure 2** – ***Statements-interviews*** *wiki page*



TÉMOIGNAGE – SUIVI RÉFÉRENT

Ceci est la dernière révision de cette page ; elle n'a pas de révision approuvée.

SOMMAIRE

1 Liste des pages wiki BEA traitant du thème Témoignage
1.1 Méthodes
1.2 Capitalisations
2 Partenaires associés au thème Témoignage
3 Pages wiki BEA les plus vues abordant le thème Témoignage

Méthode

| | |
|---|---|
| **Dernier contributeur** | Cde le 20 décembre 2021 16:32:49 |
| **Statut** | En vigueur |
| **Validateur** | Seb |
| **Thèmes sélectionnés** | Thème d'enquête |
| **Thème enquête** | Témoignage |

1 LISTE DES PAGES WIKI BEA TRAITANT DU THÈME TÉMOIGNAGE [ MODIFIER | MODIFIER LE WIKICODE ] — 4

1.1 Méthodes [ modifier | modifier le wikicode ]

| Méthodes abordant le thème Témoignage | Statut | Validateur | Date de modification | Date de création | Le dernier contributeur est |
|---|---|---|---|---|---|
| Témoignages – entretien | En vigueur | Seb | 11 mars 2022 08:51:05 | 16 décembre 2020 06:52:49 | Cde |
| Entretiens avec du personnel des organismes de gestion de la navigabilité et de la maintenance | En vigueur | Seb Grm | 5 janvier 2022 13:30:29 | 5 juillet 2018 19:03:48 | Seb |
| **Témoignage – suivi référent** | En vigueur | Seb | 20 décembre 2021 16:32:49 | 20 décembre 2021 16:32:49 | Cde |
| Structure de l'entretien | En vigueur | Seb | 6 septembre 2021 14:21:25 | 6 juillet 2018 13:02:11 | Seb |
| Entretiens – Questions à l'attention des pilotes | En vigueur | Tlo Seb | 21 avril 2021 19:11:33 | 6 juillet 2018 13:07:20 | Seb |

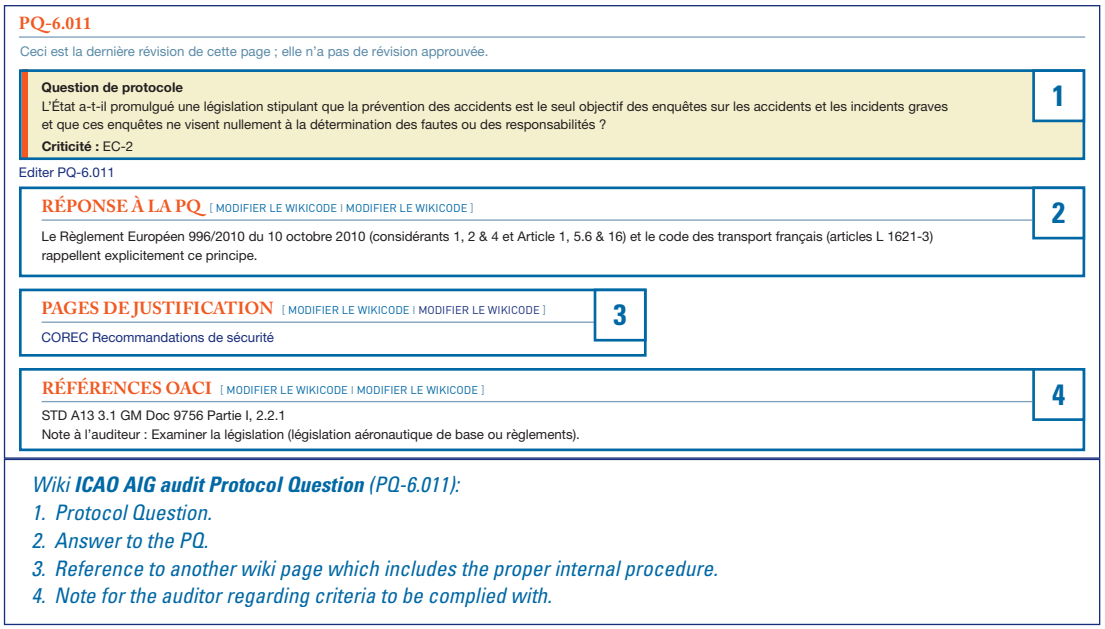
***Topics owner follow-up** page*

*4. For each page associated with the "statements-interviews": history of the status of the page, last person to have modified it, last modification.*

**Figure 3** – ***Topics owner follow-up** page*

## Compliance with ICAO Accident Investigation Section (AIG) audit questions

The BEA wiki is the system used to provide the documented evidence of the procedures implemented at the BEA to comply with the ICAO Universal Safety Oversight Audit Program (USOAP) Continuous Monitoring Approach (CMA). The documented evidence is not archived like a stand-alone document of procedures but is rather a compilation of the procedures and internal documents referenced in the answers to the Protocol Questions (PQ). The main advantage of the BEA wiki is the dynamic character of the procedures. Each procedure referenced in the answer to the PQ is linked to the PQ on the wiki page of the procedure (see Figure 4). The BEA investigator in charge of monitoring the answers to the PQs will receive a notification each time a procedure referenced in an answer to a PQ is modified by another BEA investigator. In this way, the consistency between the answers to the PQs and the procedures, and ultimately the compliance with EU Regulation 996/2010 and ICAO Annex 13, is managed.



PQ-6.011

Ceci est la dernière révision de cette page ; elle n'a pas de révision approuvée.

**Question de protocole** — 1
L'État a-t-il promulgué une législation stipulant que la prévention des accidents est le seul objectif des enquêtes sur les accidents et les incidents graves et que ces enquêtes ne visent nullement à la détermination des fautes ou des responsabilités ?
**Criticité :** EC-2

Editer PQ-6.011

RÉPONSE À LA PQ [ MODIFIER LE WIKICODE | MODIFIER LE WIKICODE ] — 2
Le Règlement Européen 996/2010 du 10 octobre 2010 (considérants 1, 2 & 4 et Article 1, 5.6 & 16) et le code des transport français (articles L 1621-3) rappellent explicitement ce principe.

PAGES DE JUSTIFICATION [ MODIFIER LE WIKICODE | MODIFIER LE WIKICODE ] — 3
COREC Recommandations de sécurité

RÉFÉRENCES OACI [ MODIFIER LE WIKICODE | MODIFIER LE WIKICODE ] — 4
STD A13 3.1 GM Doc 9756 Partie I, 2.2.1
Note à l'auditeur : Examiner la législation (législation aéronautique de base ou règlements).

*Wiki **ICAO AIG audit Protocol Question** (PQ-6.011):*

*1. Protocol Question.*
*2. Answer to the PQ.*
*3. Reference to another wiki page which includes the proper internal procedure.*
*4. Note for the auditor regarding criteria to be complied with.*

**Figure 4** – *Wiki page dedicated to **ICAO audit Protocol Question***

## Conclusion

To standardise investigation procedures, working methods and best practices, as well as to share individual experiences and to increase the overall performance level of BEA investigators, the BEA has developed an in-house tool based on the same IT system and community development as the famous Wikipedia. In parallel, the BEA has developed its own phase-approach training programme based on in-house theoretical training, and on-the-job training. The wiki tool in combination with in-house theoretical training and OJT delivers a common core of knowledge to all BEA investigators. Furthermore, the BEA wiki tool is a means of providing dynamic and robust answers to the ICAO audit questions. ■


*Participants in CAT training at BEA*

**Rémi Jouty** was nominated as the director of the BEA on 1 January 2014. He was deputy chair of the ECAC Air Accident and Incident Investigation Group of Experts (ACC) from 2016 to 2021.

**Johan Condette** joined the BEA in 2005 as a safety investigator specialised in avionics and flight recorders. He has been managing the Investigation Department since the end of 2019.

**Sébastien David** is a BEA senior safety investigator and coordinator of BEA's investigator training and investigation methods. He has participated in many investigations as investigator-in-charge or accredited representative as well as head of investigation groups.

**Nicola Gawthorpe** is in charge of the foreign-language aspects of BEA's communication.

**Philippe Plantin de Hugues** joined the BEA as a safety investigator in 1993 after his PhD in fluid mechanics. He was a flight recorder specialist from 1993 to 2012. He has been the chairman of various international working groups dealing with flight recorders, lightweight flight recorders and emergency locator transmittors.

# Strengthening the independence and credibility of aircraft accident and incident investigations in conflict-of-interest situations

**Ewan Tasker**
*Manager, International Operations and Major Investigations, Transportation Safety Board of Canada*

On 8 January 2020, Ukraine International Airlines flight PS752 was shot down shortly after departing from Imam Khomeini International Airport in Tehran, Iran. Despite an admission that its own military had been responsible for the downing, Iran decided that the State of Occurrence would lead the investigation, in accordance with International Civil Aviation Organization (ICAO) protocols for international accident investigations. As a result, an investigation was initiated by the Aircraft Accident Investigation Board of the Islamic Republic of Iran (AAIB), which reports directly to the State's aviation authority, the Civil Aviation Organization.

This decision prompted an international discussion on the importance of safeguarding the independence of investigations as well as the independence of safety investigation authorities themselves. Independence in both these areas are fundamental tenets of ICAO's Annex 13 [1] and are meant to ensure that those who might have a particular interest in the outcome of an investigation are not allowed to interfere in the process [2]. This autonomy and impartiality is critical to meeting Annex 13's singular objective: to prevent future aviation accidents and incidents.

In May 2021, the Transportation Safety Board of Canada (TSB) presented a working paper to ICAO's Accident Investigation Panel (AIGP), which raised the concern that, in situations where the State of Occurrence is implicated in the downing of an aircraft, a conflict of interest – or even the perception of one – can significantly degrade the credibility of the investigation, the uptake of any resulting recommendations and, ultimately, the prevention of future similar events. The working paper called on the AIGP to develop solutions to better manage such investigations under the ICAO Annex 13 framework.

> "This autonomy and impartiality is critical to meeting Annex 13's singular objective: to prevent future aviation accidents and incidents."

Since their implementation in 1951, Annex 13 and its Standards and Recommended Practices have been routinely amended to strengthen the independence of investigations. These amendments include delineating the rights and privileges afforded to various States involved in an investigation and establishing a clear separation between aircraft accident or incident investigations and any concurrent judicial and administrative proceedings that have goals other than the advancement of safety. In 2016, Annex 13 was updated to include additional provisions to enhance the standards used when establishing an independent safety investigation authority [3].

Although Annex 13 and its supporting manuals [4] are clear with regard to the prescription of independence, and these protocols in normal situations have historically been effective at preserving impartiality, the potential for undue influences in exceptional circumstances still remains. The functional independence of an investigation agency may not be a sufficient safeguard when the State of Occurrence has had direct involvement in the occurrence, particularly when it has admitted its involvement in the downing of a civilian aircraft or when there is reliable and verified evidence that strongly suggests that acts or omissions have directly led to the downing. In such circumstances, the connection between an investigative body and its domestic government, whose responsibility and national interests can weigh heavily, may give rise to a conflict of interest.

Although its general concept is widely recognised, the definition of a conflict of interest, in both private and public matters, varies depending on the jurisdiction or the organisation in question. In 2016, ICAO adopted a resolution regard-

(1) International Civil Aviation Organization, Annex 13 to the Convention on International Civil Aviation: *Aircraft Accident and Incident Investigation,* Twelfth Edition (July 2020), paragraph 3.1.
(2) Ibid., paragraph 3.2.
(3) Ibid., p. xvi. See also paragraphs 3.2 and 5.4.
(4) ICAO's *Manual of Aircraft Accident and Incident Investigation* (Doc 9756) and *Manual on Accident and Incident Investigation Policies and Procedures* (Doc 9962).

> “Even in the absence of a demonstrated conflict of interest, a perceived conflict of interest can be equally damaging to the credibility of an investigation.”

ing conflicts of interest relating to safety oversight functions in civil aviation [5]; however, ICAO does not have a formal definition of conflict of interest with respect to investigation authorities. Its parent organisation, the United Nations, provides a definition for organisational conflicts of interest, which includes situations where an organisation is unable to render impartial services because of other activities or relationships, or where an organisation's objectivity in performing mandated work is or might be impaired [6].

Drawing upon this definition, *actual* or *perceived* conflicts of interest may arise in the context of aircraft accident and incident investigations when, by an act or omission, competing interests either interfere or may be perceived to interfere with the independence of an investigation authority and its mandate to investigate aircraft occurrences, as well as the investigation's overall integrity, transparency, credibility, and impartiality.

An *actual* conflict of interest could involve direct or indirect intrusions in the investigation process due to competing interests and can seriously hinder the proper conduct and outcome of safety investigations. If reliable and verified evidence strongly suggests that the State of Occurrence was involved in the downing of a civilian aircraft, or if the State of Occurrence admits its involvement in the occurrence, the political pressure and prospect of concurrent judicial and administrative proceedings can create an incentive for the State of Occurrence to act in a way that may not be in the best interest of safety. This may include attempts to influence the investigation's conclusions or even assign blame or liability, which contravenes Annex 13. These competing national interests can result in the investigation authority being pressured or restricted in the conduct of its investigation, thus hindering its ability to make and/or communicate valuable findings and safety recommendations, and to produce a truly independent investigation report.

Further, even in the absence of a demonstrated conflict of interest, a *perceived* conflict of interest can be equally damaging to the credibility of an investigation. An investigation authority's *apparent* connection to its national government may be seen to compromise the objectivity and impartiality of the investigation. Even if the investigation authority were to uphold the highest degree of independence and compliance with Annex 13, international and public perception may still question the integrity, transparency, credibility, and impartiality of the investigation due to a perceived conflict of interest. Consequently, valuable findings and safety recommendations in the Final Report may be viewed as biased or partial, and could, therefore, be challenged. In addition, the findings and safety recommendations may not have the legitimacy required to prompt appropriate safety actions.

For example, in the case of the downing of Ukraine International Airlines flight PS752 over Tehran, the decision by the Islamic Republic of Iran to have its own investigation agency, the non-independent AAIB, take the lead – despite the admission that the Iranian military had shot down that aircraft – resulted in a Final Report that was assessed by some to be incomplete and to raise more questions than it answered. Whether or not there was an actual conflict of interest or actual influence by connected government agencies in this case, the international acceptance of the report was no doubt strongly influenced by the perception of such interference given the lack of independence of the lead agency.

In contrast to this, there exists at least one example of how to successfully handle such a delicate situation. In July 2014, Malaysia Airlines flight 17 was en route from Amsterdam, Netherlands, to Kuala Lumpur, Malaysia, when it was shot down over eastern Ukraine, killing all on board. The missile that downed the aircraft was of Russian origin and had been fired from disputed Ukrainian territory. Although Ukraine was entitled under Annex 13 to lead the investigation as the State of Occurrence, it decided to delegate the investigation to the Dutch Safety Board given the high number of Dutch nationals on board and to ensure the credibility of the investigation. The investigation that followed was thorough and complete, and the resulting report was widely accepted and applauded by the international community. The report included important recommendations, the uptake of which made significant strides at preventing future similar occurrences.

(5) International Civil Aviation Organization, Assembly Resolution A39-8: Conflicts of interest in civil aviation, adopted at the 39th Session, held in Montréal, 27 September – 6 October 2016.
(6) United Nations General Assembly, Report of the Secretary-General on Personal conflict of interest (A/66/98) (27 June 2011), p. 4.

## Strengthening the independence and credibility of aircraft accident and incident investigations in conflict-of-interest situations

© millaf

> "...the fundamental safety purpose of Annex 13: the global effectiveness of accident and incident prevention."

This potential for ineffective outcomes of future safety investigations as a result of actual or perceived conflicts of interest needs to be addressed; otherwise, residual risks will remain in the system and similar events will happen again. To improve these outcomes, changes or improvements to ICAO's Annex 13 will likely be needed; however, opinions regarding exactly what these changes should be are varied. Each potential solution has benefits and drawbacks, and these will need to be thoroughly considered to ensure that any changes make the future situation better, not worse.

As discussed above, the purpose of ensuring the independence of investigations and investigation authorities is so that their work is impartial and not influenced by the agenda of others with competing interests. Rather than suggesting a specific course of action or amendments, the TSB is advocating that the panel of air safety investigation experts that make up ICAO's AIGP examine this issue and consider how Annex 13 and its supporting manuals and guidance could be improved to address these conflict-of-interest situations, particularly when reliable and verified evidence strongly suggests that the State of Occurrence was involved in the downing of a civilian aircraft.

If left unchanged, the risk of future conflicts of interest – be they actual or perceived – could hamper the independence of these types of investigations and the credibility of subsequent safety findings and recommendations, undermining the fundamental safety purpose of Annex 13: the global effectiveness of accident and incident prevention. ■

**Ewan Tasker** is the manager of International Operations and Major Investigations at the Transportation Safety Board of Canada (TSB). He has over 25 years of civil aviation experience as both a pilot and an air traffic controller. Since joining the TSB in 2008, he has been involved in numerous investigations in both a supporting role and as the investigator-in-charge (IIC). He is Canada's delegate to ICAO's Accident Investigation Panel, and was the State's expert assigned to Iran's investigation of the downing of flight PS752.

# Working with families during an investigation in the modern age

**Elias Kontanis**
*Chief, Transportation Disaster Assistance Division, National Transportation Safety Board, United States*

The National Transportation Safety Board (NTSB) is responsible for investigating accidents across the United States (US) with the mission of preventing reoccurrence. As our investigators focus on determining what happened, the NTSB's Transportation Disaster Assistance (TDA) Division works to support survivors and families during a time of uncertainty. The TDA family assistance specialists provide information about the NTSB investigation, address questions and concerns, and assist survivors and family member to access resources as they face the uncertainty of their world ahead.

This article provides an overview of family assistance and explores how the US addressed this aspect of an accident response through legislation. The paper describes the NTSB's family assistance programme and offers a brief overview of the International Civil Aviation Organization's (ICAO) initiatives. We conclude with a brief discussion of operational challenges and summarise concepts that enhance the success of family assistance operations.

## What is family assistance?

Family assistance is the provision of services and information to address the immediate needs and fundamental concerns of survivors and family members following a critical event, such as an aviation accident. Although aviation accidents differ in size, scope, and complexity, the needs and concerns remain consistent, transcending socioeconomic and cultural boundaries. These concerns are:

1) **Notification of involvement:** providing timely and accurate information to family members wanting to know if their loved ones were involved in an accident.
2) **Victim accounting and reunification:** determining the whereabouts and welfare of survivors and reunifying them with family; and the effective and efficient recovery, examination, identification, and repatriation of fatally injured victims.
3) **Access to information and resources:** ensuring support services and resources are readily available to assist with immediate and ongoing needs and providing investigative information.
4) **Personal effects management:** the efficient and compassionate recovery and return of personal items.

These fundamental concerns serve as the pillars of a comprehensive family assistance operation; however, collaboration is essential as no single organisation can effectively address the concerns alone. For an organisation to understand how they fit into the family assistance response framework, the following questions must be considered:

1) How does your organisation define the affected population? Do the services offered extend beyond immediate family, to extended family, friends and colleagues? It is important to consider diversity, cultural norms, legal constructs, and your organisation's mission and mandate when identifying the population who will receive services. It is also important to establish clear priorities and boundaries to ensure services are offered to the appropriate individuals and to not dilute available resources.
2) What specific services will your organisation offer to the affected population? Which of the fundamental concerns can your organisation address given existing authorities and mandates?
3) What are the specific mechanisms to provide assistance? Does your organisation have an emergency response plan that includes family assistance? How will the operation be funded? What partnerships are in place to support your organisations' family assistance operation?
4) How will you communicate with the affected population, the other response organisations, and the public at large about your organisation's family assistance operation?

While it is essential for response agencies to develop well-thought-out family assistance response plans, in the chaos of the moment responders can lose sight of actual needs expressed by survivors and family members. There is a tendency to respond based upon a broad generalisation of what a response should entail. The fundamental concerns, much like core values, serve as guiding principles;

however, it is equally important to focus on expressed individual needs. Consider who the survivors and family members are and what their needs may be to maintain the proper focus and deliver appropriate services. Success for family assistance responders is defined by how effectively needs are met and by the compassion demonstrated during the response.

## Why is the NTSB – an accident investigation agency – involved in family assistance?

> *"Family members need to hear the facts from the NTSB. No one else will do, because the NTSB is in charge of the accident investigation and the accident site...the family members need to hear from us first."*
>
> James Hall, *NTSB Chairman Testimony before the US House Subcommittee on Aviation 19 June 1996* [1]

The NTSB's family assistance programme was established following a series of air carrier accidents where family members experienced haphazard and unorganised responses. There was no lead agency responsible for oversight of family assistance operations and a lack of interagency coordination. As a result, families advocated for change. They believed no one should ever experience what they did.

Then NTSB Chairman James Hall, a strong advocate for family assistance, met with families and facilitated discussions with other federal agencies. He knew that as the lead federal agency responsible for conducting accident safety investigations, the NTSB was in a unique position to serve as a central coordinating agency for family assistance operations following air carrier accidents. In this role, the agency would acquire institutional knowledge to enhance future responses. Chairman Hall also believed the NTSB was best suited to provide information to families about accident investigations. Through transparency and open communication, Chairman Hall hoped to foster trust and confidence in the NTSB's investigative process, and in the federal government.


**Figure 1** – *NTSB family assistance specialist delivering training at the NTSB's Training Center.*

In response to the tireless efforts of family members and other advocates, the US Congress enacted the Aviation Disaster Family Assistance Act of 1996. This legislation establishes a system for providing assistance to families following an air carrier accident resulting in any loss of life, where the NTSB is the lead investigative agency. This family assistance legislation establishes specific responsibilities for the NTSB to coordinate US federal government resources to support local and State governments, disaster relief organisations, and the air carrier to meet the needs of families [2]. The NTSB is also responsible for informing families regarding the accident investigation process and to the maximum extent practicable, ensuring the families are briefed regarding investigative findings prior to any public release of the information. To meet these obligations, the NTSB established the TDA Division, and developed a purposeful firewall between accident investigators and the family assistance operation so that family members would not unduly influence the investigative process. The TDA Division, staffed by family assistance specialists with professional backgrounds in disaster mental health, emergency management, and medicolegal operations, does not participate in the analysis of information to determine the probable cause of accidents.

The legislation also outlines responsibilities for an independent non-profit organisation designated by the NTSB to coordinate emotional care and support of families of passengers and crew. The designated organisation, specifically the American Red Cross (Red Cross), is responsible for contacting families – in coordination with the air carrier – to provide mental health and counselling services and create an environment in which families may grieve in private.

Finally, the legislation establishes a requirement for air carriers to submit plans that address 18 obligations specific to family assistance [3]. The air carrier is primarily responsible for notifying the families of those on-board that an accident has occurred; providing the passenger list to the NTSB; managing personal effects under their control; coordinating with the designated organisation (i.e. Red Cross); and providing adequate training to their employees and agents to meet the needs of survivors and family members following an accident.

(1) Aviation Accident Information for Families, 1 | C-SPAN.org
(2) 49 USC 1136: Assistance to families of passengers involved in aircraft accidents (house.gov)
(3) 49 USC 41113: Plans to address needs of families of passengers involved in aircraft accidents (house.gov)

In subsequent years, the US Congress expanded the legislation to include foreign air carriers operating within the US [4] and rail passenger carriers [5]. In 2018, the US Congress expanded the NTSB's responsibilities to provide information regarding the agency's investigative process and products to the families of individuals involved in any accident investigated by the agency, to the maximum extent practicable, in advance of the media [6].

While the US has no legislation obligating airport operators to provide family assistance, the Federal Aviation Administration's Advisory Circular (AC) 150/5200-31C - Airport Emergency Plan discusses the airport's role in family assistance operations [7]. Additionally, the US National Academies of Science, Engineering and Medicine Transportation Research Board's Airport Cooperative Research Program developed "Research Report 171: Establishing a Coordinated Local Family Assistance Program for Airports", which provides guidance to airport personnel when assisting victims and families affected by an aviation disaster [8].

## From legislation to operations: the NTSB's family assistance programme

The US family assistance legislation provided a framework (i.e. what must be done), but did not address "how" to operationalise a family assistance response. As a result, the Task Force on Assistance to Families of Aviation Disasters was formed shortly after the Aviation Disaster Family Assistance Act of 1996 was enacted [9]. Family members, representatives from the commercial aviation community, government agencies, and nonprofit organisations collaborated to develop recommendations that became the cornerstones of the NTSB's family assistance programme. The outcome of this effort was the NTSB Federal Family Assistance Plan for Aviation Disasters, which organises the family assistance response framework and establishes guidance for a family assistance response [10].

**Figure 2** – *NTSB staff participating in a mock family briefing training programme offered at the NTSB's Training Center.*

The NTSB has invested considerable resources to support family assistance planning efforts by developing and delivering training programmes, with the objective of promoting a better understanding of family assistance by bringing organisations together and encouraging our colleagues to share lessons learnt and best practices. Programme participants also understand the support they can expect from various family assistance response partners.

These outreach efforts are not limited to domestic interests. In 2011, the NTSB organised a two-day international family assistance conference attended by nearly 300 participants from 27 countries and 120 organisations. Family members, accident investigation agencies, industry representatives, government agencies, and media representatives shared best practices and lessons learnt in building family assistance programmes. The NTSB has also participated in family assistance training programmes in Asia, Africa, South America, and Europe. Additionally, the NTSB has maintained long-standing support of ICAO's initiatives to promote family assistance programmes amongst Member States.

## ICAO's family assistance initiatives

ICAO's interest in family assistance dates to 1976, with the inclusion of a Recommended Practice in Annex 13, affording Contracting States that have citizens involved in a crash access to information about the investigation and a direct role in the identification of their citizens (elevated to Standard 5.27 in 2001) [11]. ICAO continued to focus on this topic, expanding Annex 9 in 2005 to include several Standards on assistance to aircraft accident victims and their families [12]. In 2013, ICAO issued Doc 9998 – *ICAO Policy on Assistance to Aircraft Accident Victims and their Families* [13], and Doc 9973 – *Manual on Assistance to*

(4) 49 USC 41313: Plans to address needs of families of passengers involved in foreign air carrier accidents (house.gov)
(5) 49 USC 1139: Assistance to families of passengers involved in rail passenger accidents (house.gov); 49 USC 24316: Plans to address needs of families of passengers involved in rail passenger accidents (house.gov)
(6) 49 USC 1140: Information for families of individuals involved in accidents (house.gov)
(7) AC 150/5200-31C, Airport Emergency Plan, 19 June 2009 (Consolidated version includes Change 2) (faa.gov)
(8) ACRP Report 171 | ACRP (trb.org)
(9) Task-Force-On-Assistance-To-Families-Of-Aviation-Disasters.pdf (ntsb.gov)
(10) https://www.ntsb.gov/tda/TDADocuments/Federal-Family-Plan-Aviation-Disasters.pdf
(11) https://www.emsa.europa.eu/retro/Docs/marine_casualties/annex_13.pdf
(12) https://www.icao.int/WACAF/Documents/Meetings/2018/FAL-IMPLEMENTATION/an09_cons.pdf
(13) https://www.icao.int/Meetings/a38/Documents/DOC9998_en.pdf

**Figure 3** – *NTSB staff facilitating a family assistance operations meeting following the crash of Asiana Airlines flight 214 (DCA13MA120.aspx (ntsb.gov)).*

*Aircraft Accident Victims and their Families* [14]. These documents establish ICAO's overarching policy and provide guidance to Contracting States interested in developing family assistance programmes. Annex 9 was further amended in 2015, with the addition of Recommended Practice 8.46, encouraging Contracting States to establish legislation, regulations, and/or policies in support of assistance to aircraft accident victims and their families.

For those interested in ICAO family assistance initiatives, 2021 was highly productive. ICAO convened its first-ever international Symposium on Assistance to Aircraft Accident Victims and their Families [15]. This three-day event hosted by the government of Spain in collaboration with the government of the Canary Islands, provided an opportunity for participants to enhance international cooperation by sharing best practices and lessons learnt from prior responses to support the development of family assistance programmes. Additionally, ICAO's Global Aviation Training Section began developing a three-day course designed to provide Contracting States, as well as aircraft and airport operators, the foundational knowledge to develop family assistance plans. Perhaps most significantly in 2021, ICAO proposed elevating Recommended Practice 8.46 to a Standard, and developed a new Recommended Practice encouraging aircraft and airport operators to develop family assistance plans.

In 2022, ICAO designated 20 February the International Day of Air Crash Victims and Families [16]. This is the first time a day has been dedicated to commemorating all those who lost their lives in air disasters and their families.

## Operational challenges in family assistance

Over the past 25 years, the NTSB has refined its family assistance programme to address ever-changing operational challenges. The programme, originally designed around the concept of all-fatal accidents, has evolved as we responded to an increasing number of mass casualty incidents with survivors sustaining a range of injuries. We learned there are nuanced distinctions inherent in mass fatality vs. mass casualty family assistance operations and the challenges with locating dispersed survivors, reunification efforts and equitability of providing support and information.

Since enactment of the transportation accident family assistance legislation in the US, many domestic and foreign air carriers have proactively engaged with the NTSB and other response partners to develop and refine their family assistance programmes. Enhancements in aviation safety have led to a reduction in accident rates, which, coupled with turnover of air carrier emergency management staff, has resulted in a loss of historical knowledge and a lack of operational experience. The air carrier community has invested considerable effort to mitigate this loss of knowledge and experience by relying on industry benchmarking and collaborative scenario-based training and exercising with other organisations in the response community to enhance preparedness [17].

In response to the COVID-19 pandemic, the NTSB has leveraged multiple communication technologies to increase engagement with families, facilitating access to NTSB meetings and staff. These technologies have removed logistic and financial barriers associated with in-person meetings and allowed families to participate from their chosen environment. Leveraging communication technologies has come with challenges and risks, including maintaining awareness of participants (i.e. ensuring only invited participants can access the meeting), and mitigating privacy concerns associated with unauthorised recording of the meetings. Despite these challenges, the NTSB maintains a steadfast commitment to proactively engaging with survivors and families and continues to believe that transparency fosters trust and confidence in the agency's investigative process.

(14) Doc-9973-Manual-On-Assistance-To-Aircraft-Accident-Victims-And-Their-Families.pdf (aaib.gov.mn)
(15) Symposium on Assistance to Aircraft Accident Victims and their Families (icao.int)
(16) International Day commemorating air crash victims and their families (icao.int)
(17) The Evolution of Aviation Disaster Family Assistance - Post.pdf (isasi.org)

## Keys to success in family assistance

Essential to the success of the NTSB's family assistance programme is an independent and transparent safety investigation, with a focus on enhancing safety and not assigning blame or liability. A well-designed family assistance plan should be flexible and scalable with a clearly identified lead agency that utilises a unified command concept of operations, enabling organisations to work together without acquiescing authority, responsibility, or accountability. A comprehensive family assistance response requires collaboration from multiple government agencies and non-governmental organisations. Participating organisations should focus on the fundamental concerns of families within the boundaries of their mandate and capabilities.

Establishing rapport and credibility with family members by communicating realistic expectations about the investigation and other aspects of the response is critical to the provision of family assistance. However, there are limits to the information and services available, which must be clearly communicated to family members in an appropriate manner.

Family assistance needs to be an organisational priority, ingrained in the culture and mindset. More than regulations, policies, standard operating procedures, or checklists – family assistance is about listening and learning from those impacted by disaster. Ultimately, family assistance is about caring for our fellow human beings, treating them with the dignity and compassion we would expect if facing an unexpected injury or loss of a loved one. ■

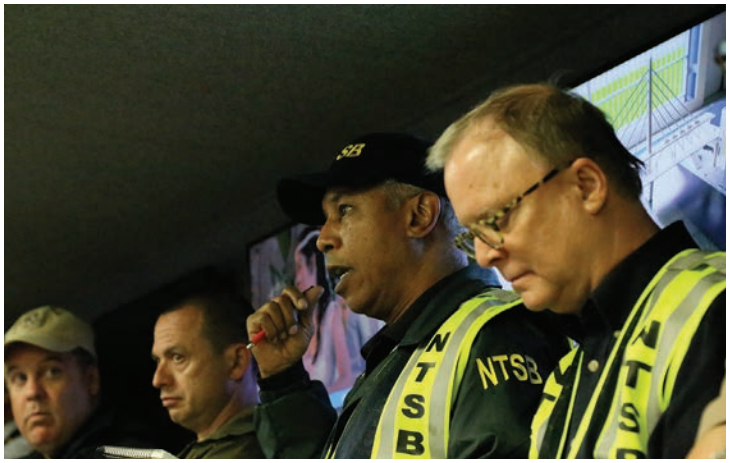



**Figure 4** – *NTSB staff participating in an interagency briefing following structural failure of a partially constructed pedestrian bridge crossing an eight-lane roadway in Miami, Florida on 15 March 2018. As a result of the collapse, one bridge worker and five vehicle occupants died. Five bridge workers and five other people were injured (HWY18MH009.aspx (ntsb.gov)).*

**Figure 5**
*NTSB staff working collaboratively with Amtrak, the American Red Cross, and local response agencies to coordinated family assistance services following the 18 December 2017, Amtrak train derailment in DuPont, Washington, which resulted in 3 fatalities and 65 injuries (Amtrak accident near DuPont, Washington (ntsb.gov).*

**Elias Kontanis** serves as the chief of the Transportation Disaster Assistance Division, which is responsible for leading a highly dedicated team of specialists that manage the National Transportation Safety Board's family assistance programme. He joined the NTSB in 2008 as the coordinator for victim recovery and identification. In this capacity he was responsible for facilitating the victim recovery and identification process following transportation in mass fatality incidents.

Prior to joining the NTSB, Mr Kontanis served as a forensic anthropologist with the Joint POW/MIA Accounting Command – Central Identification Laboratory.

He earned a PhD in biology from Cornell University and is a registered medicolegal death investigator. He is an active FAA Certificated Gold Seal CFI, CFII, MEI, AGI, and IGI, Part 141 check instructor.

# A dignified approach to victims and families

**Victor M. Aguado**
*Permanent Representative of Spain on the Council of ICAO*

We are well aware that aviation, as a human activity, brings associated risks. Fortunately, those risks are managed and minimised through regulations and audits that have evolved over time. While the introduction of new aircraft technologies and air navigation systems has been fundamental, the conclusions and subsequent recommendations from accident investigation reports have represented, and will continue to represent, one of the pillars of the international civil aviation safety record.

Aviation, as a key industrial and economic sector, moves billions of passengers a year, generates trillions in revenues, and transports more than a third of the value of international commerce. However, even considering these substantial volumes and the important role aviation has on our well-being, assistance to the victims of accidents and their families, when accidents occur, has not been adequately provided in most States. Fortunately, major progress has been achieved through the new and enhanced ICAO regulation in recent years; however, there is still much to be done.

The cornerstone of this progress is Doc 9998 – *ICAO Policy on Assistance to Victims of Aviation Accidents and their Families*. This policy was approved by the Council of ICAO in 2013, and then endorsed by the Assembly the same year. An associated document, Doc 9973 – *Manual on Assistance to Aircraft Accident Victims and their Families,* provides practical guidance on how to comply with the policy.

> “The cornerstone of this progress is Doc 9998 – *ICAO Policy on Assistance to Victims of Aviation Accidents and their Families.*”

Recommended Practice 8.46, introduced in Annex 9 – *Facilitation,* represents the initial step in the regulatory process. This recommendation was subsequently codified into an international Standard by the Council in early March 2022. Associated to this mandatory requirement, auditing the States' implementation of the Standard is part of the ICAO Universal Safety Oversight Audit Program, USOAP, a fundamental element to induce States to comply with this requirement.

Families and associations have been given access to ICAO's work through the creation of the Air Crash Victims' Families' Federation International (ACVFFI). The Council of ICAO recognised ACVFFI as an international organisation with a unified voice to be invited to relevant ICAO meetings. Since then, ACVFFI's participation in Assemblies and high-level meetings as the voice of the victims and families is a regular feature.

Recently, also, the Council of ICAO decided to designate 20 February as the international day of commemoration and remembrance of air crash victims and their families.

Moreover, as directed by the Assembly, the first ICAO Symposium on Assistance to Aircraft Accident Victims and their Families was held in Las Palmas de Gran Canaria, Spain, from 1 to 3 December 2021. This event was a unique opportunity to bring together not only experts in the safety field but also affected individuals – in some cases survivors – as well as other families of victims and associations in general.

All this progress could not have been possible without the active engagement of civil society channelled via the Air Crash Victims' Families' Federation International – to which I refer as “the Federation” for simplicity. And behind successful initiatives and important results there are always individuals, with the required courage and leadership that make all that possible. In this case, the late Hans Ephraimson should not be forgotten as a pioneer who took the initial steps

> “The Council of ICAO recognised ACVFFI as an international organisation with a unified voice to be invited to relevant ICAO meetings.”

> "All this progress could not have been possible without the active engagement of civil society."


of this journey. The credit for the materialisation of the progress today should go to the Federation, its chair Pilar Vera Palmés, and the associations and individuals supporting it.

Reflecting on the subjects raised in the Symposium, we were able to take stock of progress achieved in the regulatory field, and for the first time topics such as compensation and communication with the families and the media drew much attention.

While in other articles we could address the wide variety of subjects raised during the Symposium, this article focuses on the communication dimension.

It would be advisable to differentiate the information to be provided in the aftermath of an accident as a first phase, from the regular information that needs to be flowing while the investigation is in progress as a second phase. Then a third phase, issuing the final investigation report, would close the information cycle.

The first phase, once an aviation accident occurs, is when the crisis is born, with scenarios that on many occasions are chaotic. Information flows quickly, media professionals search for any accessible source of information, be it testimonies of sound and/or video; they try to reach the accident location, they make enquiries in the departing airport, and in the destination airport. Everybody wants to know what happened, what is going on. Social media, with its almost instantaneous capability, feeds photos, videos, comments and opinions. This is what we could understand as the right to inform and the right to be informed.

However, in an aviation accident there are victims and families, individuals who deserve to be treated with due respect. They, the families, are the ones to inform first – and also expeditiously – about the list of victims, survivors and locations to be reached. It has to be clear which organisation will proceed with this first step: is it the airline? The airport? The special unit established to support victims and families? And which is the reliable source? The families should not be approached as the subject of the news; they should be treated with respect.

Information needs to be reliable and diligent. Clear procedures need to be in place. Lack of coordination and absence of regulated process leads to confusion and chaos. A single, well-defined and trusted source is essential – the rest of the entities and service providers have to rely on it, all of them hopefully receiving the same information. Only a trusted and reputable source could counteract fake news, false interpretations and, on many occasions, doubtful opinions by so-called experts.

The second phase of information relates to how the accident investigation is conducted. In this phase, the pressure of the media might be reduced but the need to inform remains intact. The families of victims need to know *what* happened and *why* it happened. Annex 13 to the Chicago Convention assigns the responsibility of the investigation to the State of Occurrence. It is assumed that each State has in place such investigation capability allocated to a body fully independent of the parties involved, i.e. operators, manufacturers, regulators, or service providers.

The entity entrusted with the investigation is no doubt best placed to determine the *what* and the *why*. These entities will take the time to collect and analyse all the available evidence. They represent the main and trustworthy source of information. But these investigation bodies do not have, in most cases, the mandate to inform and engage with the families nor to engage with the media.

The third phase will come with the issuing of the Final Report. This is when the knowledge of the *what* and the *why* is shared, and when the actions needed to avoid a similar accident occurring again are revealed. Once more, as the body issuing the report, the investigation entity is responsible for explaining what needs to be corrected, and becomes the privileged source.

In the Symposium and during the debates, it was obvious that there is much room for improvement about how information is provided to families, and how information is passed to the media and – as a consequence – to the public. A number of recommendations were consolidated in the final report. Those related to communication are:

- Wide effort is required to call upon the responsibility of com-

## A dignified approach to victims and families

> “ Giving punctual and dignified information to the families, based on a reliable and trustworthy source, would remedy much of the unnecessary suffering. ”


munication media and agencies to treat accident information respecting the dignity of victims, families and individuals. Building on experiences of some recent tragedies beyond aviation could help. ICAO should prepare a compilation of best practices currently applied by States and agents. An assessment of those best practices may need to consider the formulation of a communication code of conduct to be shared worldwide.

- The ICAO Accident Investigation Panel (AIGP) should consider proposing guidance material for accident investigators to provide focused briefing material, including “what, when and how” information to families of victims.
- The AIGP should also consider providing guidance on how to address communication media when an accident occurs and how to continue providing verified, on-time information for public release, while protecting the investigation process.
- Independence, rigour and technical capability of accident investigation authorities are fundamental prerequisites for providing value to the accident investigation findings and also, importantly, to provide credibility to the accident reports. Absence of conflict of interest is essential. Promotion by ICAO of regional cooperation will assist in improving the investigation process alleviating cases of limited technical resources and/or experience in certain States.
- Accident investigation Final Reports should be easily understandable for families and translated in all the languages of interest to the families.

Giving punctual and dignified information to the families, based on a reliable and trustworthy source, would remedy much of the unnecessary suffering. The what, why and how to avoid similar accidents remain fundamental questions that our aviation system needs to answer to satisfy the existential needs of those affected. ■

**Víctor M. Aguado** is the Permanent Representative of Spain on the Council of ICAO. Currently he is the chairman of the Committee on Governance. He also served as the chairman of the Special Task Force to develop the ICAO Policy on Assistance to Aircraft Accident Victims and their Families.

Before joining the ICAO Council, Mr Aguado was Director General of EUROCONTROL, the European Organisation for the Safety of Air Navigation (2000-2008).

Mr Aguado has held high-level positions in Spain, including CEO of ISDEFE (systems engineering). He was appointed director general of the cabinet of the minister of state for defence, after being director for advanced air traffic management programmes in the Ministry of Transport.

Mr Aguado holds a master’s degree in aeronautical engineering from the Polytechnic University of Madrid, and a Master of Science in management from the Massachusetts Institute of Technology, MIT.

# Communication, information and other issues in aircraft accidents

**Pilar Vera Palmés**
*President, Affected of Flight JK5022 (AVJK5022) and Air Crash Victims' Families' Federation International (ACVFFI)*

Communication on the causes of air accidents to victims' families has not advanced at the same rate as international civil aviation in the world. On the one hand, it seems the investigative authorities are distrustful towards the families of the victims; when they explain the causes of the disaster, the information has previously been leaked to the media. This practice is not provided for by Article 21 of Regulation (EU) 996/2010. But on the other hand, the authority provides information to society through the media, which is usually interesting information depending on the source from which it comes.

In the last 15 years, despite the seriousness of the air accidents that have occurred around the world, and both because of the way they happened and because of the large number of victims, information in the media and social networks has focused on photos, videos and audios of people in a state of shock; images of defenceless corpses or of their personal belongings scattered where the plane crashed.

A passenger becomes a victim when he or she does not arrive at their destination. In general, their families face a wall of misunderstanding and lies, despite the agents involved in air transport assuring a dose of compassion. They seek to control the consequences so everything can be closed as soon as possible, without thinking that the least a person who has lost a loved one in a plane crash needs to know is why he or she died, because there is no greater suffering than loss.

As is natural, the information provided after an air accident is not the same in all States or authorities. Many factors must be considered: structures with preventive aviation safety cultures, advanced societies with computerised mechanisms, considerations regarding culture or religion, etc. Those States with solid democratic, moral and cultural principles usually put people first, although always with reservations due to the "security of the systems". The diverse and multiple interests generated around an air disaster, with passengers from different nationalities, aircraft manufacturers, civil aviation authorities and places of occurrence, are issues that could be considered take precedence over the suffering of the people affected.


IDENTIFICADOS 49 DE LOS 153 CADÁVERES

El avión perdió potencia sin que ardiera el motor, según las cintas

Los investigadores han visionado ya las imágenes y el aparato cae tras elevarse menos de 50 metros

Las familias de las víctimas plantan a Spanair: «No nos informan de nada»

La compañía asegura que el avión estaba «al cien por cien» y niega que vaya a retirar los MD-82

EL APARATO ACCIDENTADO HABÍA RETRASADO UNA HORA LA SALIDA POR UN PROBLEMA TÉCNICO

153 muertos al estrellarse un avión en Barajas tras despegar

19 personas sobreviven al desastre · El aparato de Spanair, en el que viajaban 22 niños sufrió un incendio en un motor · La aeronave pasó la última revisión en enero

RELATO DE UNA SUPERVIVIENTE

"Al levantarme sólo vi cuerpos esparcidos"

According to my experience of the accident of 20 August 2008 (Madrid-Barajas Airport, Spanair flight JK5022 crashed during take-off, causing 154 deaths and injuries to 18 survivors), everything had to be done despite the great air tragedies suffered in Spain, including the largest worldwide number of victims of air catastrophe at Los Rodeos Airport – Tenerife in 1977. Knowledge had to be extracted for everyone's safety. In this sense, thanks to the pressure of the Association of Affected by Flight JK5022, an assistance plan for victims and their families has been developed, in addition to other regulations regarding the disastrous situations the families suffered in 2008.

As president of the Association of Affected by Flight JK5022, in 2015 in Madrid I promoted the creation of the Air Crash Victims' Families' Federation International (ACVFFI), recognised for the first time in ICAO history as an international organisation suitable to be invited to its events. The Federation is made up of ten victims' associations from different air accidents, as well as of more than 30 victims who do not have an association. The purpose of ACVFFI is to be the


unique voice for victims in international forums where the issues related to international civil aviation regulations are decided, which until then had "forgotten" the air accidents' victims and families, taking into account the historic advances at the international level achieved in the last ten years.

It is deeply hurtful for anyone who has lost a loved one in a plane crash to see the images, over and over again, of scattered belongings or dead bodies. Is that information? What value does it bring, except pain for families?

Since 2010, I have reiterated to the authorities of my country, ICAO and international organisations the urgent need to create a guide or model for all media and agents involved in air transport. This is already urgent because it is repetitive and offensive to constantly see images that do not inform but only fill minutes of television, radio and press without thinking about the damage they do to the families and victims who, despite being "protagonists" of the news, are not taken into account to avoid additional suffering.

The *ICAO Policy on Assistance to Aircraft Accident Victims and their Families*, Doc 9998, indicates some aspects regarding the provision of information, but without developing.

As ACVFFI's chairperson, I have presented six working papers at three ICAO Assemblies related to important issues for victims and their families. Two international conferences held parallel sessions on assistance to victims and their families. Little by little, a favourable climate has developed in States, which faces the "dark side" of aviation: the victims, who, as passengers, are the basis of civil aviation development. I discovered great ignorance regarding the consequences for the victims in the majority of States that had not suffered accidents. It was therefore necessary to meet all, or the maximum number of, civil aviation agents, to show the tragic face of aviation: the victims.

This is how we managed to include the first international Symposium on Assistance to Aircraft Accident Victims and their Families in the 2019-2021 ICAO triennial calendar of events. It was held in Las Palmas de Gran Canaria on 1, 2 and 3 December 2021, with the support of the regional government of the Canary Islands, the origin of more than 80 deceased in the accident of flight JK5022. One panel looked at the treatment of information, with contributions from authorities, media, university professors and international organisations. Other important issues were addressed, such as the upgrade of Recommended Practice 8.46 of Annex 9 to a Standard, because very few States have implemented Doc 9998, the independence of the accident investigation authorities, and the best practices of insurers in compensation, among others. I participated in two panels on behalf of ACVFFI; it was the first time ICAO had dedicated an international event to specifically address the issues surrounding a passenger becoming a victim and I am hopeful there will be other similar events in the future.

It was shocking to observe that participants had different opinions on concepts such as freedom of expression, the training of informants, the difficulty of obtaining official information, the impact of social networks and the speed of dissemination of unverified information. I describe it as shocking because, with a few exceptions, the point of view of the victims' families is hardly taken into account.

A kind of consensus was reached for ICAO to prepare a guide, method or manual that collects some points to take into account so that all the information provided during the chaos after an air accident is first verified and transmitted with respect and dignity towards the deceased and their families, leaving out any type of uncertain, disrespectful and unqualified information. The speed in offering a piece of news should not prevail over its content.

In the conclusions panel, I spoke about the model of Radio Televisión Canaria reporting on the eruption of the Cumbre Vieja Volcano on the island of La Palma. It followed the instructions of the Committee of Experts formed after the emergency, caused by nature. Without nuances of interpretation on one side or another, the pain of the people who had lost all their heritage and the material memories of their lives prevailed.

Is there a model to follow in any country in the world? From my point of view NO. Are there experiences that are references? My answer is YES. Not all air accidents in the last 15 years had the same treatment. Some countries have cared for their citizens, have accompanied them on the difficult path after the death of their loved ones until the end of the duel. Not all models are perfect, but it is possible to extract one part and create a common model respected by the agents involved, airlines, airports, international organisations, the media, aircraft manufacturers, insurers and authorities.


Regarding the treatment of information, **could ECAC create a compendium of best practices in Europe, which could be introduced at ICAO, even at its next Assembly, to support and contribute to this objective?**

In 2018 we achieved that the Spanish Congress of Deputies approved a Proposal Not of Law, **which among other matters asked the European Union to establish a statute of the victims of air accidents and families,** which would address the outstanding issues: *knowing the causes of the death of their relatives, knowing the truth, correcting the failures that caused the tragedy, ensuring a balance between insurers and victims and repairing the damage caused in accordance with European and international regulations rather than with the internal regulations of each country (for example, in Spain the scale established for compensating the injured in a car traffic accident was used for the victims of the JK5022 plane crash, as strange as it may seem), guaranteeing the independence of the accident investigation authority, ensuring the judicial investigation on the responsibility for the deaths and injuries of people is conducted with rigour, means and independence, avoiding interference between the safety investigation and the judicial investigation because their objectives are opposite: the first aims to discover the causes of the accident and the second to discover the responsibilities.*

**Could ECAC lead the elaboration of a European statute of assistance to air accident victims and their families in the European Parliament?**

ICAO has already paved the way; Europe still has to elaborate such a European statute to address the issues outlined here.

**The provision of information to families and society must fulfil the function of informing while remaining compatible with respect for the rights of citizens affected by an air disaster.**

I invite ECAC to work together with ACVFFI and I would like to indicate our availability. We have done so loyally at ICAO, achieving significant and historical advances such as 20 February, when the International Day of Air Crash Victims and their Families was commemorated for the first time in 2022 to continue in future years.

**For all the civil aviation victims in the world who are ALWAYS IN OUR HEARTS.** ■

**Pilar Vera Palmés** specialises in Spanish public administration, victim assistance and legal proceedings related to air accidents and legislation on accident investigation and prevention and air safety.
She is a non-practising law graduate, a retired local and central administration official, and a non-practising administrative manager.

Ms Palmés has been president of the Association of Affected of Flight JK5022 since May 2010. She was chair of the Air Crash Victims' Family Group (ACVFG) from 2013 to 2015, an association replaced by the Air Crash Accident Victims' Families' Federation International (ACVFFI). ACVFFI was recognised by ICAO in 2016 as the first and only international federation of victims of air accidents and families and invited to its events as an international organisation for the first time in ICAO history. Ms Palmés has been chair of ACVFFI since July 2015.

She was a member of ICAO Task Force 285, which reviewed ICAO Circular 285, upgraded to Doc 9998 – *Policy on Assistance to Aircraft Accident Victims and their Families* and approved by the ICAO Council on 1 March 2013, which Ms Palmés attended. Doc 9998 was subsequently endorsed by the 38th ICAO Assembly the same year.

# ECAC Facilitation Working Group

## Interview with **Teresa Antunes**

*Senior Officer, Facilitation and Security Directorate, Portuguese Civil Aviation Authority (ANAC), and Chair of the ECAC Facilitation Working Group*

**1. What is the Facilitation Working Group? What are the group's objectives?**

The Facilitation Working Group (FAL) has been dedicated to one of ECAC's strategic priorities – facilitation – for more than 30 years. We can highlight two key objectives for this group: to improve the passenger's experience, and to facilitate legitimate trade.

The group comprises representatives of all ECAC Member States, and observers from non-ECAC Member States, organisations and industry stakeholders. It meets twice a year, and follows an annual work programme, subject to approval by Directors General.

ECAC Doc 30, Part I – *Facilitation* is the policy statement in the field of civil aviation facilitation. It contains ECAC policy recommendations on facilitation matters such as persons with reduced mobility (PRMs), immigration, cargo and health, and it is constantly updated. At present, Doc 30, Part I is in its 12th edition and it offers a comprehensive approach to facilitation, consistent with ICAO Annex 9 and compatible with the security provisions compiled in ECAC Doc 30, Part II – *Security*.

The Facilitation Working Group delivers a series of amendments to ECAC Doc 30, Part I and its Annexes, seeking consistency or introducing new topics such as safety investigations for air accident victims and their families, Advance Passenger Information Systems, hidden disabilities or health recommendations.

**2. What topics is the group currently focusing on?**

For the last two years, the main focus has – naturally – been on the COVID-19 pandemic. In 2019, our reality was to adapt to the continuous growth in global air transport; and then, from January 2020, we faced an abrupt decrease in passengers at the same time as countries were imposing multiple travel restrictions, brutally impacting the civil aviation industry and creating one of the biggest challenges ever for facilitation.

The group is also discussing the impact of the Schengen Entry Exit System (EES) and the European Travel Information and Authorisation System (ETIAS), which will enter into force this year. This topic will certainly be on our agenda in the near future.

An additional challenge concerns the increasing requests from States to receive passenger data. Some progress was made after the introduction of new Standards and Recommended Practices (SARPs) into ICAO Annex 9, but the problematic continues for European States and for airlines.

Recognising the need for a more comprehensive review of ECAC, Doc 30, Part I, in October 2021 it was agreed to establish a study group under the Facilitation Working Group to review the document from a broad facilitation perspective and to incorporate the inputs from the sub-groups on immigration and the transport of persons with reduced mobility.

A quick word here to mention that the majority of Member States participating in the FAL Working Group also contribute to the work carried out by the European Coordination Group for Facilitation (ECG-FAL), which proposes working papers and information papers to be presented to the ICAO Facilitation Panel, the ICAO Assembly or, recently, the ICAO High-level Conference on COVID-19. ECG-FAL also provides a forum to discuss documents presented by other States or organisations vis à vis the European legislation and priorities.

**3. What challenges do you see arising in the future?**

One of the challenges will be to contribute actively to the post-pandemic situation, removing the layers of restrictions that have been added to air travel over the past two years, which caused confusion for passengers, undermined their confidence in travel and often created chaos at airports.

At the same time as the current health crisis has forced the aviation community to re-think processes, practices and systems, it has opened up the possibility of exploring new ways to optimise the passenger journey, and minimise all kind of disruptions.

Aviation must take benefit from emerging new technologies, while at the same time guaranteeing non-discrimination and taking into consideration disabilities, reduced mobility and the equity of access to digital solutions.

In developing these technological tools, interoperability must be considered to ensure harmonisation and avoid unnecessary obstacles for air travel.

The key word for the future must be **harmonisation**, as the best way to restore confidence in travel.


*December 2021, check of health-related (COVID-19) documents on arrival*

In the years to come, one of the main challenges will be to be better prepared for future crises (health or other). Proposals are being discussed, emphasising the need to establish a crisis management framework at global, regional and national levels, in pursuit of a predictable and harmonised response to crisis.

### 4. What main challenges for ECAC Member States do you see the group discussing at future meetings?

Facilitation will continue to deal with the particular interests of the four major membership groups: Member States, aircraft and airport operators, and customers, and each with possible different priorities. Our aim is to address all of these interests in a coordinated manner, seeking for more efficient and attractive air travel.

"Old" challenges will certainly continue, namely threats to security, illegal migration, human trafficking, travel document fraud, illicit narcotics trafficking and the spread of contagious diseases.

Passenger dignity, accessibility and the safeguarding of personal data will also remain at the heart of the European priorities.

An interesting discussion has started at ICAO level regarding passengers' rights during air travel (different from consumer protection), which may constitute a possible new topic for facilitation. It should be noted that, at the time of writing this article, it is not possible to anticipate the consequences of the war in Ukraine and the effects that will follow, which may impact on aviation and, more specifically, on facilitation.

### 5. Some final words?

Every current discussion mentions the "lessons learnt" from the COVID-19 pandemic. It was confirmed during the health crisis that a high degree of cooperation between all sectors involved in civil aviation is required. This includes the States with their institutions, airlines, handling agents, airport operators and customers.

Any new measure in preparation should trigger an analysis of the consequences to air operations and the passenger journey. Civil aviation authorities are key players in ensuring the efficient coordination of all State bodies and administrations involved in enforcing compliance with facilitation provisions, such as the ministries of interior and health, and immigration and customs authorities, etc.

With the COVID-19 example in mind, it has become clear that facilitation encompasses many diverse topics and authorities. It is therefore paramount that such topics be coordinated by the civil aviation authority, in close cooperation with all stakeholders. National Facilitation Committees should continue to be the fora for discussions between government representatives, stakeholders and the private sector. ■

**Teresa Antunes** is a lawyer and has been working in the Facilitation and Security Directorate at the Portuguese Civil Aviation Authority (ANAC) since July 2012.
She has postgraduate studies in public administration and in regulation and competition.

Responsible for facilitation matters, Ms Antunes represents ANAC in international fora and contributes to various international working groups. She currently chairs the ECAC Facilitation Working Group, having been chair of the Sub-group on the Transport of Persons with Reduced Mobility for five years. She is also co-chair of the European Coordination Group for Facilitation.

Ms Antunes is a member of the ICAO Facilitation Panel, contributing to several of its working groups, namely the Working Group on Accessibility, the Working Group on Human Trafficking and the Working Group on Guidance Material.

## ECAC Coordinating Committee reflects on support measures to Ukraine

### Paris/videoconference, 6 April 2022

The Coordinating Committee discussed the impact on civil aviation of the war in Ukraine and decided to extend support to ECAC Member State Ukraine through a series of financial and practical measures.

The Committee also agreed on follow-up actions to the ECAC Medium-Term Objectives (EMTO) Task Force's review of the performance of ECAC's working groups, concentrating on proposals for promoting development of talent through the work of the groups, ensuring greater consistency of approaches and structures, and promoting diversity in the chairing of and participation in groups.

In a busy meeting, the Committee also appointed Piotr Samson (DGCA Poland) as ECAC Focal Point for Safety; agreed on the presentation of new and revised strategic documents to Directors General at their 11 May meeting; received updates on the preparation of proposed European working papers for the 41st session of the ICAO Assembly, and on progress made in the implementation of the various diversity initiatives agreed by Directors in December 2021; and approved the proposed agenda for the Committee's coming meeting with the United States' authorities.

## ECAC President at LACAC Assembly

### Montevideo, 23-25 March 2022

The 24th Ordinary Assembly of the Latin American Civil Aviation Commission (LACAC) provided an excellent opportunity for ECAC President, Alessio Quaranta, and ECAC Executive Secretary, Patricia Reverdy, to meet and share views with Directors General from the region on topics of common interest, such as the recovery from the COVID-19 pandemic and respective priorities ahead of this year's ICAO Assembly.

In his speech, the ECAC President underlined the importance of continuing to strengthen the cooperation between LACAC and ECAC, combining their efforts "to shape a sustainable civil aviation system that meets the needs of both our economies and our citizens". He stressed that all actors of the aviation sector were convinced the future of aviation passes through social, economic and environmental sustainability.


"This is why this ICAO Assembly must set the course for the sustainable aviation of the future. Our sector must become part of the solution in the climate change debate."

## European coordination ahead of 41st ICAO Assembly

### January, February, March 2022

The European coordination groups across various domains (safety, environment, aviation security, facilitation, economic matters and cyber security) have been meeting throughout January, February and March to discuss the preparation of papers for the 41st session of the ICAO Assembly to be held in Montreal from 27 September to 14 October 2022.

All of the groups considered the outcome of the ECAC Directors General meeting on 15 December 2021 (DGCA/157), at which Directors General discussed the proposed European working papers and gave guidance on the prioritisation of topics.

The coordination groups have each established small drafting groups to refine and develop the proposals for working papers, and to reach out to other States and regions that may be considering bringing forward papers on the same topics.

In addition, an ad hoc joint coordination group was established on 20 January to lead the coordination of three cross-domain topics.

Draft papers have been presented by the drafting groups to the respective coordination groups for review, and the texts endorsed by the coordination groups will be submitted for approval to Directors General at their next meeting in May (DGCA/158, 11 May 2022).

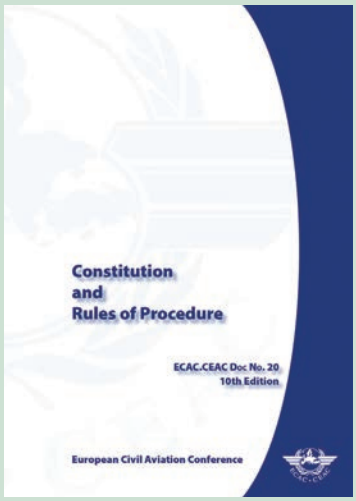
## ECAC President meets with CANSO and EBAA

### 21 January 2022

ECAC President, Alessio Quaranta, and Executive Secretary, Patricia Reverdy, met virtually with CANSO representatives Michiel Van Dorst, CEO of LVNL, and Tanja Grobotek, CANSO Director Europe Affairs, to discuss matters of common interest to both organisations. Topics on the agenda included global ATM performance in Europe, innovation, the environment, and the integration of drones in airspace. Ways to enhance cooperation at both technical and more political levels were also explored under the existing framework of the Cooperation Arrangement between ECAC and CANSO signed in 2014, and the two parties will continue their discussions in the coming months.

### 27 January 2022

A fruitful exchange of information took place between ECAC President, Alessio Quaranta, and Executive Secretary, Patricia Reverdy, and European Business Aviation Association Secretary General, Athar Husain Khan, and Senior Manager European Affairs, David Grivet, at the end of January. The exchange was an excellent opportunity to learn more about the evolution of the business aviation value chain in the last two to three years, and its commitments on environment and technology development. The impact of the COVID-19 pandemic was also discussed, as well as the role (e.g. medical evacuation flights) and priorities of business aviation.




## Amendments to ECAC Constitution

### Paris and videoconference, 15 December 2021

Two amendments to the ECAC Constitution (ECAC Doc 20, 9th edition/ December 2020) were adopted at the 40th ECAC (Special) Plenary Session to incorporate recent decisions taken by ECAC Directors General on the provisions for the Focal Point for Facilitation and Security, and those relating to associated bodies of ECAC.

The portfolio of the ECAC Focal Point for Facilitation and Security was split into two separate portfolios, given the growing importance of facilitation matters and the increasing volume of activities in this domain as a direct consequence of the COVID-19 pandemic and focus on health matters.

# Directors General address the resilience of the air transport sector to crisis at the annual ECAC Forum

## Paris and videoconference, 14 December 2022

The latest edition of the annual ECAC Forum of Directors General (FORUM/14) took place in Paris and by videoconference to consider the resilience of the air transport sector to crisis.

Forty-eight in-person and forty-five remote participants, representing 34 ECAC Member States, the European Commission, EUROCONTROL, ICAO, United States' Federal Aviation Administration (FAA), IATA, ACI EUROPE, Airlines for Europe, Airbus, Groupe ADP and the European Transport Workers' Federation, took part in the conference thanks to its hybrid format.

In the opening of the Forum, Donal Handley (EUROCONTROL) provided a series of updates and forecasts on air traffic in the European region. He also presented an analysis of the trends in the number of flights and movements, comparing data with the figures registered in 2019, before the COVID-19 pandemic.

This snapshot of the current air traffic situation set the scene for the next three sessions of the Forum, where participants discussed best practices and lessons learnt during the pandemic, and how the aviation sector could recover sustainably and build resilience for the future. The debates were facilitated and enhanced by input from guest speakers from the industry, Member States, the United States and the European Commission, as well as other European organisations.

The first session, moderated by Raúl Medina Caballero, Director General for Civil Aviation of Spain, and ECAC Focal Point for Facilitation, looked at facilitation as a key and strategic factor in the coordination of future crises. Aviation was highly impacted by the COVID-19 pandemic, and decisions on related protection measures and travel restrictions were driven by public health authorities. The presenters shared experience of managing the balance between health imperatives and the needs of the sector, from the point of view of industry and regulators, including a view from the United States' Federal Aviation Administration. The Forum agreed that a balanced approach between health imperatives and the economic needs of the aviation industry, and coordination and cooperation between the respective decision-makers are needed to enable the recovery of the sector.


Moderated by Damien Cazé, Director General of Civil Aviation, France, and ECAC Focal Point for Economic matters, the second session focused on labour demands and skills retention. It was highlighted that regulatory authorities need to attract and retain staff and expertise, and that the difficulties created in this respect by the pandemic would have lasting effects. Participants also discussed the changes to be expected in the future labour demands of the aviation sector.

The last session, moderated by Rannia Leontaridi, Director General for Civil Aviation, United Kingdom, and ECAC Focal Point for Environment, addressed innovation and sustainability in the aviation industry. Environmental concerns and passengers' perception of the public health risks associated with air travel are the main challenges aviation faces today. The Forum discussed the regulatory and industry actions needed to ensure the aviation sector remains innovative and sustainable to meet consumer and environmental demands. The session concluded on the need for what was summarised in the acronym "IPAC": the image of the sector, partnership between all stakeholders, actions speaking louder than words, and communication to showcase the efforts.

Closing the Forum, ECAC President, Alessio Quaranta, underlined that the regulatory and industry actions need to ensure aviation remains innovative and sustainable in order to meet public expectations while maintaining passengers' confidence in air transport, and this through coordinated measures taken across the aviation sector.

## End of year review of ECAC's 2021 activities and the priorities for 2022

### Paris and videoconference, 15 December 2022

Directors General of Civil Aviation assembled for their 157th meeting (DGCA/157) to hear updates on recent ICAO and European developments, to discuss the preparations for the next ICAO Assembly (27 September – 14 October 2022), and to review the status of implementation of ECAC's activities in the current year and the work priorities for the next year in the following domains: external relations, safety and accident investigations, unmanned aircraft systems (UAS), facilitation, security, environment, economic and legal matters.


ECAC President, Alessio Quaranta, presented ECAC's activities on external relations, highlighting the relations with key international partners and regional organisations (ACAO, AFCAC, LACAC). Srečko Janša (DGCA Slovenia) provided an update on the achievements of the Slovenian Presidency of the Council of the European Union, and Damien Cazé (DGCA France) gave a presentation on the priorities for the French Presidency of the Council of the European Union (first semester of 2022), underlining that the main priority in the field of aviation would be decarbonisation. Damien Cazé also announced that an Aviation Summit dedicated to decarbonisation would be organised in Toulouse on 3-4 February 2022. EASA Executive Director, Patrick Ky, briefed Directors General on the latest EASA initiatives on drones, and the Chief of Staff in the EUROCONTROL Director General's Office, Donal Handley, gave an update on traffic volumes and on recent developments within EUROCONTROL, including its support for SESAR and for environmental initiatives.

CASE in brief

## First CASE II training course in French on Best Practices in Covert Testing

### Cotonou, Benin, 14-18 March 2022

Participants from Benin, Cameroon, Madagascar, Gabon and Senegal attended the first course on covert testing in aviation security delivered in French.

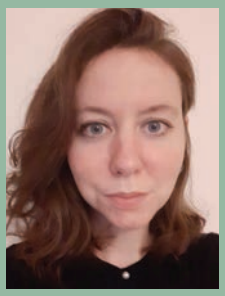
Experts from the French Directorate General of Civil Aviation (DGCA) and Niger's DGCA joined forces to support participants in acquiring the knowledge and tools to implement, develop and improve covert testing programmes. Delivered through 11 modules, the activity included presentations, discussions and multiple practical exercises designed to support effective covert testing.

Each represented Partner State is now better positioned to integrate effective testing processes and procedures into their aviation security compliance and oversight frameworks.

The Beninese Director General of the National Civil Aviation Agency (DG ANAC), Karl Legba, closed the training course and thanked CASE II for its support. He expressed his commitment to the process of continual improvement of Benin's aviation security programme and welcomed the potential for ongoing partnership with the CASE II Project.

## NEWS FROM THE ECAC SECRETARIAT

### ECAC welcomes new staff members



**SANDRA FLEURY** joined the ECAC Secretariat on 17 January as administrative/financial assistant. Before joining ECAC, Sandra worked for five years at the European Investment Bank in Luxembourg as a senior operational assistant and in the recruitment of IT profiles for the European institutions.
Sandra is looking forward to working with the ECAC Secretariat and is eager to provide her support to the organisation's various administrative and financial activities.

**MIGUEL MARTÍN** joined the CASE II Project team in January for a six-month secondment from the Spanish Aviation Safety and Security Agency (AESA). Miguel has four years of experience as an aviation security inspector at AESA, where for the last year he specialised in security equipment. He has previously represented Spain in the ECAC Common Evaluation Process for security equipment Management Group and the ECAC Technical Task Force, and now looks forward to assisting CASE II in developing and delivering capacity-building activities in Partner States across Africa, the Middle East and Asia.

## Events to come

**MAY**

| | |
|---|---|
| 4 / | 10th Familiarisation webinar on basic knowledge on aviation and the environment (ENV-FAMWEB/10), videoconference |
| 4-5/ | 36th meeting of the Explosive Detection Dogs Study Group (EDD/36), Paris |
| 10/ | 2nd Sustainable Aviation Fuels Workshop (ENV/SAF-WKSHP/2), videoconference |
| 11/ | 158th meeting of Directors General of Civil Aviation (DGCA/158), Paris/videoconference |
| 12/ | 26th meeting between the ECAC Coordinating Committee and the United States' authorities (CC-US/26), Paris |
| 16-18/ | 5th ECAC Environmental Forum (ENVFORUM/5), videoconference |
| 19-20/ | 50th meeting of the Training Task Force (TrTF/50), videoconference |
| 20/ | 5th ECAC Environmental Forum (ENVFORUM/5) – closed session, videoconference |
| 24-25 | 35th meeting of the Security Forum (SF/35), London/videoconference |

**JUNE**

| | |
|---|---|
| 8-9/ | 32nd meeting of the Behaviour Detection Study Group (BDSG/32), videoconference |
| 21-22/ | 82nd meeting of the Technical Task Force (TTF/82), videoconference |
| 23/ | 35th meeting of the Security Programme Management Group (SPMG/35), videoconference |

**JULY**

| | |
|---|---|
| 11/ | 3rd coordination meeting of the Common Evaluation Process Participating Test Centres (CEP-TC/3), videoconference |
| 19-20/ | 54th meeting of the Common Evaluation Process Management Group (CEP-MG/54), Paris |

**AUGUST**

| | |
|---|---|
| 25/ | 195th meeting of the Coordinating Committee (CC/195), Sorrento |
| 25-27/ | 71st Special meeting of Directors General (DGCA(SP)/71), Sorrento |

# News from the JAA Training Organisation (JAA TO)

ASSOCIATED BODY OF ECAC

## Editorial

**Paula V. de Almeida,** *JAA TO Director*

Dear readers of ECAC News,

As we entered 2022, we were looking forward to the steady recovery of aviation relations and the back-to-normal-business paradigm in a world that has made arrangements with the coronavirus. Nonetheless, today the world is far from normal, and aviation is facing the next reset.

Here in the Netherlands, the JAA Training Organisation (JAA TO) is experiencing an ease in Dutch COVID-19 health measures, allowing the higher education sector to welcome trainees for in-person training again. As a learning and knowledge centre, we are pioneering educators who believe in the social aspect of teaching. That is why it brings us great joy to welcome back aviation professionals to headquarters!

The restart of classroom training is providing our global customers with the much-needed aviation qualifications and certificates through face-to-face learning, on top of our successful virtual training offer. Such in-person classroom training also includes courses delivered at customer locations. As a premiere, JAA TO has successfully facilitated four training courses on unmanned aircraft systems (UAS) for the Civil Aviation Authority of Nigeria. These customised activities continue to make an added-value difference for the aviation stakeholder.

This year, JAA TO is aiming for aviation regulatory excellence again by serving the best training and knowledge solutions to professionals and organisations globally. This self-perception is synonymous with the commitment to aviation's highest governing bodies. As associated body of ECAC, JAA TO serves the ECAC community and beyond. In March, JAA TO's top-quality training efforts earned the organisation its new ICAO recognition as Platinum Training Centre of Excellence (TCE) – one of the very few in the world.

With the power of aviation bringing together old and new professionals and friends, I hope you enjoy reading this issue of ECAC News.

## International day commemorating air crash victims and their families

With regard to this 75th issue of ECAC News magazine on aviation safety and air accident investigation, JAA TO joins the aviation community, ICAO, ECAC, and the Air Crash Victims' Families' Federation International (ACVFFI) in the commemoration and promotion of appropriately stressing that aircraft accident victims and their families deserve levels of care and treatment consistent with related ICAO policies/guidelines. Through training and facilitation, relevant international organisations, associations and aviation States can further act in the interest of aircraft accident victims and their families while addressing international safety matters.

Aviation safety is at the heart of JAA TO's DNA. The first decades of JAA's history focused on unifying the multiple safety aviation procedures to legislate them into a cooperative safety regulatory system achieving uniform high standards of aviation safety similar to its American counterpart, the US Federal Aviation Administration (FAA). Over the years, these harmonising rules and regulations were transitioned into workshops and the training courses of today.


Going into the 15th year of accident and incident investigation training, it is from this heritage that one of JAA TO's fundamental strategic objectives is (and will continue to be) improving the safety of the global air transport system.

Find more aviation safety training here.

## New training cooperation – JAA TO and Civil Aviation Authority of Nigeria

As part of a comprehensive training cooperation, the JAA TO delivered four customised courses on unmanned aircraft systems (UAS) to the Civil Aviation Authority of Nigeria (NCAA). The training courses UAS-INI, UAS-OPS, UAS-AWE and UAS-SORA were held at the NCAA location in Lagos, Nigeria, in December 2021 and February 2022.

In completing these courses, NCAA obtained the full UAS expertise and training of JAA TO's drone portfolio, which is recognised by the Joint Authorities on Rulemaking for Unmanned Systems (JARUS). It also qualifies the Nigerian delegates to receive the new UAS Diploma, a voluntary emblem of achievement upon completion of a certain string of training courses.

This very first cooperation between JAA TO and NCAA in the UAS domain marks a milestone for both organisations. As ICAO Training Centre of Excellence,

JAA TO is proud to support an aspiring aviation stakeholder like NCAA with its JARUS-certified UAS training. For NCAA, the training means harmonisation of Nigerian UAS regulation according to the world's highest standards and the euro-centric European Union (EU) UAS regulations in particular.

## ICAO training and recognition in 2022

The International Civil Aviation Organization (ICAO) recognises JAA TO as one of the few new TRAINAIR PLUS Training Centres of Excellence – Platinum Level in line with the organisation's new TRAINAIR PLUS Programme (TPP) credit framework. With the status achievement, which is the highest possible recognition, valid for the next three years, JAA TO is one of four TCEs globally and remains the only TCE in Europe.

With the newly launched membership credit framework, ICAO's Global Aviation Training (GAT) transforms its membership levels recognising TPP members based on activities and network collaboration. In the Platinum level, JAA TO acts as active TPP member conducting extensive activities (training, development of ITPs/STPs etc.), supporting capacity-building efforts and effectively assisting Member States in the implementation of ICAO SARPs.

In January 2022, JAA TO was glad to facilitate the first ICAO capacity-building training of the year, "Training Developers Course (TDC)", in virtual format to trainees from Europe, the Middle East and Africa (EMEA) and Asia-Pacific (APAC) regions. JAA TO certified two new course developers for its in-house Course Development Unit (CDU) strengthening internal capabilities and committing to ICAO GAT training harmonisation.

Find upcoming ICAO training at the JAA TO here.

## New JAA TO Foundation Board Member


The JAA TO welcomes Mirjana Čizmarov (Director General of the Civil Aviation Authority of Serbia) as member of the organisation's Foundation Board. Appointed as Board member in November 2021, Ms Čizmarov joins interim chair Alessio Quaranta (Director General of the Civil Aviation Authority, Italy, and ECAC President) and Jaco Stremler (Acting Director General of the Civil Aviation Authority, Netherlands). In November 2021, the Board visited the JAA TO headquarters, with Ms Čizmarov joining virtually, to meet with the director, Paula V. de Almeida.


ECACNEWS is published by the
European Civil Aviation Conference (ECAC)

FOR MORE INFORMATION
PLEASE CONTACT:

**ECAC Secretariat**
3 bis, Villa Emile Bergerat
92522 Neuilly-sur-Seine Cedex FRANCE
Tel. : +33 1 46 41 85 49
communications@ecac-ceac.org
www.ecac-ceac.org