European Network of Civil Aviation Safety Investigation Authorities

ANNUAL REPORT 2022

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FOREWORD

BY THE CHAIRMAN OF THE EUROPEAN NETWORK OF CIVIL AVIATION SAFETY INVESTIGATION AUTHORITIES

ENCASIA was formed in January 2011 and the Network has now reached its twelfth year of functioning. This annual report illustrates ENCASIA's achievements along the years and remaining challenges, with a focus on the year 2022.

During the year 2022, the industry commenced its recovery after the COVID-19 pandemic, and also saw ENCASIA resume its meetings in person, including the 25th Plenary Meeting held in October 2022.

It may be said that although virtual meetings were a necessity to continue the work of ENCASIA, they do not replace the interaction that physical meetings bring about, as well as the discussions, friendships and networking that ENCASIA fosters through such in-person meetings which also facilitate cooperation among SIAs in the sharing of safety information and the mutual support in undertaking complex safety investigations.

This year we also saw Working Group 4 organise a successful workshop in Luxembourg between SIAs and the Judicial Authorities, and here I would like to once again convey my gratitude to the Luxembourg SIA for hosting the event. As a first of its kind, ENCASIA received positive feedback from both representatives of SIAs and from Judicial Authorities that attended the event.

During 2022, ENCASIA continued to participate in the ICAO Regional Accident and Incident Investigation Organization (RAIO) Investigation Cooperation Mechanism (ICM) Cooperative Platform (CP), wherein ENCASIA continues to promote the procedures and legal framework within which it operates, as a pragmatic and efficient way of improving cooperation.

This year also saw the retirement of Mr Jurgen Whyte, the former head of SIA Ireland, who held the position of Deputy Chairman during my tenure, and who retired from his position as Deputy in March 2022. On behalf of ENCASIA members and observers, I convey my heartfelt appreciation for his distinguished and invaluable dedication towards ENCASIA's work.

After serving two terms as Chairman, I will stand-down in early 2023 when my current term in office comes to an end. After 6 years, I humbly pass on the baton to the next Chair, to continue directing ENCASIA towards further success and achievements for its members and observers, and this with the invaluable assistance of the Heads of Working Groups which cannot go unmentioned. In view of this, I take the opportunity

to thank the Heads of Working Groups, past and present, the Working Group members, the European Commission, as well as the SIA-Secretaries who have assisted ENCASIA during these 6 years. I am grateful for all their constant support.

Looking back over the past 6 years, each Working Group has accomplished significant milestones, and I can only help but mention a few. Firstly, Working Group 1 has achieved an internet presence over the years, not only through the website, but also through LinkedIn, with nearly 300 followers. Working Group 2 has successfully concluded the paper on 'Best practices for Cooperation between SIAs and EASA during an Investigation'.

Working Group 3 continues to work on the EMSS, with desktop exercises and training held in Iceland, Lithuania, Slovenia and Portugal which the respective SIAs used to develop their own national investigation management plans with the assistance of other SIAs. Working Group 4 continues to assist ENCASIA in managing the EC grants, including the financial, planning and logistical activities required to support the ENCASIA Work Programme. The workshop held in 2021 in Toulouse on Safety Recommendations and the workshop held in Luxembourg in 2022 on the Relations between SIAs and the Judicial Authorities are examples of Working 4 activities.

Working Group 5 has successfully completed the Peer Review 1 phase with all SIAs, which helped to improve the mutual understanding of our common rules and in identifying capability gaps and, more importantly, they have helped building stronger ties within the community of European safety investigators. The Working Group has also completed Peer Review 2A and is now working to commence the Peer Review 2B phase. Working Group 6 continues to work with SRIS 2 and continues to hold regular workshops. An important ENCASIA milestone for 2020 concerned the achievements of the ad-hoc ENCASIA-EASA working group on EASA participation in safety investigations under Regulation (EU) No 996/2010. There has also been an addition of a new Working Group 7 regarding ICAO matters and State Letters.

Besides the Working Groups, it is significant to mention that over the past 6 years, ENCASIA has increased its participation in international fora, namely ENCASIA or its members are now represented in various key organisations and forums including having a significant presence in the International Civil Aviation Organisation (ICAO) Accident Investigation Group Panel (AIGP) and the ICAO Regional Accident and Incident Investigation Organization (RAIO) Investigation Cooperation Mechanism (ICM) Cooperative Platform (CP).

ENCASIA has also been acknowledged internationally through the invitations received to speak at international conferences and workshops, including the ICAO / Spain Symposium on Assistance to Aircraft Accident Victims and their Families, the ICAO-IAC Aircraft Accident Investigation and Incident Investigation (AIG) Online Workshop,

the Workshop on accident/incident investigations – EASA Eastern Partnership / Central Asia Project (EaP/CA), the Symposium in Spain regarding Family Assistance, as well as ITSA held in 2022.

The COVID-19 pandemic also deserves a special mention as it was indeed a major challenge for the aviation industry that had an impact on safety investigation authorities.

We also saw the departure of our colleagues from the AAIB-UK in 2020 due to BREXIT, who had always been fully committed to ENCASIA's endeavours. In the same year, ENCASIA welcomed the safety investigation authority of Switzerland as an observer.

In commemoration of the lives lost, one cannot help but mention the accidents that occurred during these past 6 years that shed light on the importance of what ENCASIA members and observers represent and what they seek to achieve within aviation with regard to the prevention of accidents and incidents. In this regard, 2021 saw the return to service of Boeing 737 MAX, after having been grounded for about 2 years.

This annual report also contains a list of fatal accidents that occurred in 2022 to commercial aviation worldwide, wherein 2022, although seeing a slight decrease in fatal accidents when compared with 2021, saw a significant increase in deaths when compared to the previous year.

In conclusion, I would like to thank the Heads of the Working Groups, the members in each Working Group, the European Commission, the SIA-Secretary, as well as the Deputy Chair of ENCASIA for their work and contribution throughout the year.

I hope that you will enjoy reading this report and learn more about ENCASIA's contributions and advancements, and I would like to wish every success to ENCASIA members and observers, to my successor as the new Chairman, as well as to the next Deputy Chairperson. It has been a pleasure and an honour serving in this capacity for the past 6 years.

Rémi Jouty

Chairman of ENCASIA

ENCASIA Chairman until 7th March 2023

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INTRODUCTION

The European Network of Civil Aviation Safety Investigation Authorities (ENCASIA) was established in January 2011 thanks to the entry into force of Regulation (EU) No 996/2010 on the investigation and prevention of accidents and incidents in civil aviation.

ENCASIA constitutes an independent grouping of the 27 civil aviation safety investigation authorities (SIAs) of the EU Member States.

ENCASIA is composed of the Heads of the SIAs in each of the Member States and/or, in the case of a multi-modal authority, the Head of its Aviation Branch, or their representatives, including a Chairman and a Vice-Chairman chosen among these for a period of three years.

ENCASIA puts a strong emphasis on the coordination and mutual support between Safety Investigation Authorities (SIAs), in order to generate real added value in aviation safety.

This is to be achieved by building upon the already existing cooperation between such authorities and the investigation resources available in the Member States. SIAs should be able, in each Member State, to conduct efficient and independent investigations and contribute to the prevention of accidents through their activities.

ENCASIA's mission is to further improve the quality of air safety investigations and to strengthen the independence of the national investigating authorities. Therefore, it may engage in activities such as:

- Development of training activities;
- Promoting safety investigation best practices;
- Developing a mechanism for sharing investigating resources;
- Advising EU institutions on air accident investigation and prevention matters.

This report is the twelfth ENCASIA Annual Report related to the implementation of its work programme. The Report will be provided to the European Parliament and European Council and will be made publicly available on the ENCASIA webpages, which is hosted on the European Commission's website at www.encasia.eu.

Chapter 1:
SIGNIFICANT ORGANISATIONAL AND REGULATORY CHANGES IN 2022

1.1) ENCASIA's Organisation

1.1.1) ENCASIA's Chairman and Deputy Chairman

Mr. Rémi Jouty (France) and Mr. Jurgen Whyte (Ireland), who were respectively re-elected Chairman and Deputy Chairman of ENCASIA in 2020, continued in office. However, Mr Jurgen Whyte retired in June 2022, and consequently, stepped down as Deputy Chair on the 2nd March 2022.

During the 24th Plenary Meeting held in March 2022, it was agreed that ENCASIA would remain without a Deputy Chair until February 2023, and to have elections for both posts during the Plenary Meeting in February 2023.

1.1.2) ENCASIA Secretariat

Dr Rebekah Tanti Dougall (Malta) continued in the role of ENCASIA SIA-Secretary. The secretariat is further supported by the European Commission through the participation of Mrs Isabel-Clara Barbero.

1.1.3) ENCASIA Members and observers

Following a formal request, the SIA from Ukraine has asked ENCASIA on the possibility of seeking observer status. Following this request, Ukraine has provided documents to show that it meets the criteria set by ENCASIA for observer status. The application and supporting documents are being reviewed through the Peer Review working group in conjunction with the Sub-Committee on Observer Candidate States.

1.1.4) ENCASIA Grant

2022 saw the continuation of the grant received in 2021 from the European Commission, commencing from the beginning of 2021. Whilst it was envisaged to run until the end of 2022, in view of the COVID restrictions in force, a sixth month extension of the grant was requested in the last quarter of 2022.

1.2) Guest Speaker during the Plenary Meeting

During the Plenary Meeting held in October 2022, ENCASIA had the pleasure of welcoming EASA to deliver a presentation on the Report "Methodological Impact Assessment Support on Aviation Accident Cost" which project was awarded to a contractor named "ALG" under the Impact Assessment & Evaluation of EASA rules in the field of Aviation Safety (ASSESS III) framework contract.

The representative from ALG remotely presented an overview of the support provided to EASA through this assignment. The objective of the project was to provide an estimation costing model for aviation accidents in different operation types. The work presented raised several questions and comments which hopefully will help EASA and its contractor to make progress on their ultimate goal of producing more documented cost-benefit and risk-benefit analyses.

Chapter 2: ENCASIA PARTICIPATION IN INTERNATIONAL FORA

2.1) ICAO Regional Accident and Incident Investigation Organization Investigation Cooperation Mechanism Cooperative Platform (ICAO/ICM CP)

ENCASIA continued to participate in the ICAO Regional Accident and Incident Investigation Organization Investigation Cooperation Mechanism Cooperative Platform (RAIO/ICM CP) which was set up further to Assembly Resolution A40-6, which directed the ICAO Council to support the implementation and further development of the Global Aviation Safety Oversight System (GASOS) regarding the necessary measures to strengthen, assess and support RSOOs or RAIOs to assist their Member States in accomplishing certain safety oversight, accident and incident investigation and safety management functions and activities. The RAIO/ICM CP intends to build up on the experience coming from the set-up of the Regional Safety Oversight Organizations (RSOO) CP.

The main objective of the ICAO RAIO/ICM CP is to help strengthen existing RAIOs or ICMs and assist in the establishment of any new RAIO or ICM to be more effective and efficient in supporting their Member States.

During the workshop organised with the Annual Meeting held between the 7th and 8th December 2022, Mr Martin Puggaard, Head of the Danish Accident Investigation Authority, and Mr Nelson Oliveira, Head of the Portuguese Accident Investigation Authority, in their capacity as Chairs of Working Group 3 (Mutual Assistance) and Working Group 5 (Peer Reviews) respectively, delivered a detailed presentation of the work being conducted by each ENCASIA Working Group.

The purpose of the workshop was to share ENCASIA's experience and continuous work with regard to the EMSS and the Peer Review process, respectively, leaving to each RAIO or ICM the assessment regarding the usefulness and applicability of this methodology within their particular context.

This workshop, which ended up being centered around ENCASIA's experience, illustrated that the RAIO concept, which implies a delegation of states accident investigation functions to an international organisation, has faced several challenges since 2011 (the date of the publication of DOC 9946 entitled "RAIO") and that the pragmatic ENCASIA approach has provided more concrete cooperative actions over

the years. ENCASIA fits the concept of Investigation Cooperation Mechanism (ICM) very well.

2.2) ICAO / EASA Strengthening Regional Cooperation Conference

The Chair of Working Group 3 and the SIA-Secretary attended the ICAO / EASA Strengthening Regional Cooperation Conference which was held on the 20th January 2022 online. The event objectives were to discuss different means of sustainability of RSOOs and other regional mechanisms on safety oversight and accident and incident investigation.

The event objectives included to update States, industry and international organizations on the benefits of Regional Safety Oversight Organizations (RSOOs), to propose a tangible path for a collective effort from different stakeholders on strengthening regional collaboration; to discuss different means of sustainability for RSOOs and other regional mechanisms on safety oversight and accident and incident investigation; to discuss the contributions that RSOOs provide to States to enhance safety oversight requirements and highlight the critical role they have played during the COVID-19 pandemic; as well as to explore the importance of collaboration with industry in supporting the capacity building of regional organizations by closing the existing gaps in technology that impedes on effectively conducting safety oversight services for their Member States. The conference also identified that the mechanisms for a successful RSOO cannot be directly transposed to RAIO, due to significant differences between safety oversight activities and accident investigation activities.

2.3) ITSA

The Chairman of ENCASIA and several ENCASIA members attended the meeting organised by the International Transportation Safety Association in Helsinki and the Finnish SIA. The forum provided the opportunity for the Heads of Safety Investigation Authorities from different domains to discuss various topics, including Thematic Safety Studies, Experiences in Investigating Non-Transportation Incidents/Exceptional Events, Assisting Families Following Transportation Accidents, Stress Management as well as Efficiency in Safety Investigations.

Chapter 3:
ECCAIRS 2.0 AND SRIS 2.0

Article 18 of Regulation (EU) No 996/2010 requires member states to record in the European Common Repository (ECR) all safety recommendations issued in accordance with Article 17(1) and (2). A decision was made by the European Commission in 2017 that support of the ECR would have transferred from the DG-JRC (Joint Research Centre) to EASA on 1st January 2021.

The new ECR supporting software, ECCAIRS 2, which is referred to as E2, is based on modern IT technologies and allows a more efficient central ("Web based") architecture combining "national" and "ECR" data. It is currently in place to manage the European Reportable Events database required by Regulation (EU) No 376/2014, as well as the European Safety Recommendation Information System (SRIS) database, required by Regulation (EU) No 996/2010.

The E2 project started back in October 2017 and the SRIS2 became fully operational for SIAs on 1st January 2021, after a short and intense period of testing and training, with the following main features:

- New web-based architecture, including the possibility for an SIA to set up custom settings, custom fields, personal notes, roles and user management without requiring the installation of any components on a local server.
- Versioning of the records, allowing an SIA to publish the version of a Safety Recommendation while still being able to work on intermediary draft versions, not visible to others.
- Full control on when to 'release' safety recommendations to the ECR-SRIS and to the Public SRIS (including responses received after July 2019[1]).
- Feature which will allow an SIA to electronically address a safety recommendation to an E2 registered organization (EASA, NAA's, etc.).
- Possibility to export data to external analytical tools (Excel, 'Tableau', etc.).
- Feature which will allow to link a safety recommendation with the related occurrence stored in the ECR-ADREP.
- Other features are constantly developed in coordination with ENCASIA WG6.

[1] As per European Commission implementing Decision (EU) 2019/1128 of 1 July 2019.

ENCASIA WG 6 has been actively involved in the project with the participation of its members to the ECCAIRS Steering Board, Steering Committee, EASA Network of Analysts (NoA) and KUG[2] in order to assist the implementation of the new system.

In particular:

- quality checks were carried out to evaluate not only the quantity of data (number of SRs) but also the quality of data transferred (responses, notes, attachments, etc.) and/or inserted in the database;
- on-line training of SIAs' personnel is available to operate the system and to be able to load new recommendations or update existing data;
- continuous monitoring of the system development is ongoing to further improve SRIS2 capabilities.

Throughout the year 2022 the SRIS2 achieved maturity and was regularly used by SIA's, sometimes with some difficulties encountered during operations and reported by Local Project Managers from SIA's (LPMs) to the SRIS2 customer support. Unfortunately, the continuous release of new versions of the software did not allow the production of a training manual. For this reason, although on-line support is made available by EASA, WG6 is planning a hands-on training seminar for all LPMs, in autumn 2023. The aim of the seminar is to provide a common knowledge of the latest system release and to harmonize all actions related to the life cycle of a safety recommendation from drafting to closure.

During the second quarter of 2022, the French SIA (BEA) transferred to the SRIS2 database all the safety recommendations (825 in total) it had issued prior to 2010.
This transfer required preparation work upstream of the collection data, on an Excel file; then it has been transferred to the legacy ECCAIRS/SRIS 1.0, which was the only format acceptable by the E2 system.
This operation represented a valid test for other SIAs which would decide to keep their historical safety data in archives, on a single database.

Thanks to the enhanced query system and the data extraction tools, WG6 has been able to complete the statistical analysis for this report, whilst new features such as Safety Recommendations coming from Third-Countries (TCSRs) has been implemented (see chapter 4.6.4).

Future improvements will cover the link of Safety Recommendations to the related Occurrences and the interaction with addressees.

[2] KUG: Key User Group. This team was set up with representatives of NAAs to establish the functional specifications (business requirements) of the system. ENCASIA was represented by WG6 and assisted in defining the key requirements for the recording of safety recommendations and for the management of SIA's events databases to ensure that the current and future anticipated needs will be met.

Two ad-hoc ECCAIRS Steering Board (ESB) meetings with the participation of National Aviation Authorities (NAAs) and SIAs were held in videoconference, in June and in September 2022, to analyse the interaction required between NAAs and SIAs in order to populate ECR-ADREP database with "Annex 13" type of occurrences.

In fact, while NAAs are, in general, the competent authorities for uploading in the ECR-ADREP the data related to the Occurrence Reporting regulated by Regulation (EU) No 376/2014, there are occurrences, related to Accidents (ACC) and/or Serious Incidents (SI) for which a SIA opened an Annex 13 safety investigation: in this case such SIA would be the responsible entity by Regulation (EU) No 996/2010. These meetings have been very effective and gave the possibility to several NAAs and SIAs to exploit together, from different aspects, solutions to the challenge of processing above mentioned peculiar occurrences.

Thus, new features have been implemented to foster this collaboration between NAAs and SIAs with reference to Annex 13 type of Occurrence Reports (OR):

- all SIAs are now registered Authorities in both E2/SRIS2 systems;
- 3 options have been identified and will be available:

  → Reg 376/2014 Competent Authority transfers full ownership of "Annex 13" type of OR received to SIA;

  → SIA processes OR in E2, and shares it directly to the ADREP ECR;

  → SIA processes OR in E2, and reports it back to NAA who then process and shared to ADREP ECR.

These options have been presented to all European NAAs during the ECCAIRS Steering Committee held on 08 December 2022 and to all ENCASIA SIAs during the ENCASIA Plenary meeting held on 11 and 12 October 2022.

WG6 keeps encouraging and supporting the dialogue at national level between NAA's and SIA's in order to identify preferred scenario regarding above mentioned options.

The current framework contract for the E2 project with the current IT contractor will end in June/July 2023.

EASA is preparing a new open tender to be launched early 2023. The scope will be similar to the current framework contract, so further development, operation and support from the existing E2 IT system setup.

Although the current contractor is most likely submitting an offer for this upcoming new open tender, there is no guarantee that it will "win" the tender.

According to EASA E2 project management, the possibility that a different contractor would replace the current one, might potentially induce delays to the programme delivery. Hence, EASA could only firmly fix the first semester of 2023 roadmap, still guaranteed to be executed and supported by current IT contractor.

Chapter 4:
ENCASIA'S WORKING GROUPS

4.1) Working Group 1: Communication

WG1 deals with Internet presence and ensures that the content of the ENCASIA webpages are regularly reviewed by SIAs in order to have at least their respective webpage updated.

The working group continues to be active on the ENCASIA LinkedIn page, informing members of ENCASIA activities. Such activities included the 25th bi-annual ENCASIA Plenary Meeting held in Brussels, the Workshop on the Relations between Safety Investigation Authorities and the Judicial Authorities held in Luxembourg, and the participation of the Head of Working Group 3 and Working Group 5 in the ICAO RAIO ICM CP workshop.

LinkedIn has also served as a forum for the posting of relative documents, such as the Commission Staff Working Document on the Evaluation of Regulation (EU) No 996/2010 on the investigation and prevention of accidents and incidents in Civil Aviation.

The LinkedIn page has gained many followers over time, reaching nearly 300 followers in 2022. This has enhanced the visibility of ENCASIA on the professional network, which is an addition to the website, and continues to be a proactive way of maintaining communication with members.

4.2) Working Group 2: Cooperation

In 2022, the Working Group concluded their work on 'Best practices for Cooperation between SIAs and EASA during an Investigation'. The aim thereof is to offer best practices and guidelines for EASA participation in the safety investigation, and the exchange of information from EASA to safety investigation authorities and vice-versa.

The work therein concentrated on 5 tasks, including promotion of a process for using a suitable 'data sharing platform' for on-going investigations, notification issues, different aspects of information sharing between EASA and SIA, the possibility for

EASA to appoint multiple Technical Advisors, as well as best practices on how to deal with comments from EASA to the draft final report received by a EU SIA Member State leading investigation or participating in a third country's investigation.

The paper also provides the rationale pertaining to each, to help SIAs and EASA understand the background for this practice, as well as providing guidance on what to think about in fulfilling that recommended practice.

Working Group 2 will resume its work on a number of open tasks on good and best practices, including the review of translation of documents, drones, and developing a paper on major investigation checklist, as well as providing an overview on which methods for analysis of accident are used by SIAs, if any. In 2022, the working group was also tasked with the updating of CIRCA BC which will replace the DRUPAL repository of ENCASIA documents.

4.3) Working Group 3: ENCASIA Mutual Support System

WG3 aims to develop the ENCASIA Mutual Support System (EMSS) through the resource map which is envisaged in 3 phases, the long term goal being to have a 24/7 operational system capable of organising and providing mutual assistance to any SIA which would urgently need such assistance when facing a major accident.

In 2022, the group continued to focus on Phase 1, regarding how to introduce a system to maintain information on key SIA capabilities and abilities and key investigator competencies wherein the ENCASIA Resource Map (ERM) will be the analysis tool for identifying the initial areas of the EMSS in relation to abilities and capabilities.

The Resource Map was updated in the beginning of February 2022 with the latest information from the Peer Review 2 Questionnaire carried out by Working Group 5.

Phase 2 would then establish an accreditation system for IIC and group leaders. This would introduce an operational mutual system wherein support can be provided between ENCASIA SIAs members and would constitute ENCASIA's framework for sharing resources. This would seek to improve the quality and standards of investigations conducted by ENCASIA SIAs.

The Working Group also continues to attend and participate in the ICAO RAIO ICM Cooperative Platform, wherein the Chair of the working group attended various meetings held in 2022, as well as to the Annual Meeting. The Annual Meeting was held as a Plenary on the first day, whilst on the second day, a presentation provided

by the Chairs of WG 3 and WG 5 were presented on the Mutual Support System Workshop and the Peer Reviews, respectively.

4.4) Working Group 4: Planning and Resources

Working Group 4 has the responsibility to manage the execution of the grants provided by the European Commission that support a number of items of the ENCASIA work programme. With regard to this, the group was also worked on a call for tender for the next contracts, that could entail a framework contract for a certain duration, rather than for one event.

In particular, in 2022 Working Group 4 organised an EMSS workshop on the Relations between SIAs and the Judicial Authorities held in Luxembourg in November 2022, hosted by the Luxembourg SIA.

The workshop was attended by around 60 participants with representatives from SIAs and Judicial Authorities from different legal systems, having one representative of both institutions from each State sponsored by the ENCASIA grant. The program included a seminar on the independence of SIAs and Judicial Authorities and the legal issues that might impact the conduct of a safety or judicial investigation, a workshop with case studies, as well as a visit of the European Court of Justice.

The topics covered by the workshop covered *inter alia* access to evidence, the balance test on sensitive information, the use of safety investigation reports in court, and issuing of safety recommendations during concurrent safety and judicial investigations with reference to ICAO Annex 13, Regulation (EU) No 996/2010, advance arrangements, national law, the balance test and best practices. Two speakers from the Eurocontrol Just Culture Task Force were also invited.

4.5) Working Group 5: Peer Reviews

In 2022, the Working Group finalised the draft Peer Review Phase 2A Report encompassing the results and the analysis in an anonymised manner of the answers to the Peer Review questionnaire. This draft report was sent in December to all SIAs, for consultation.

With regard to the Peer Review Phase 2B, whilst 2 SIAs were chosen for the Pilot Phase 2 B to be conducted during the first half of 2023, the working group finalised the draft Phase 2B Handbook for the Peer Review process on ''How do you handle a major investigation?". The Peer Review Phase 2B has the intention of going into more detail on the qualitative aspects and would therefore focus on the objective of how a SIA handles a major accident investigation in a timely manner in compliance with Regulation (EU) No 996/2010.

The draft handbook includes a library of questions to address how to handle a major accident, based on legislation and best practices, with the fundamental topics serving as the mandatory part of the Peer Review. The Peer Review would also include a customized part, with questions tailored to the specificities and particular issues of each SIA. This draft handbook was also sent in December to all SIAs, for consultation.

With regard to the Peer Review for assessment of observer status for Ukraine, whilst the Questionnaire was sent by WG 5 to SIA Ukraine in October 2021, in December 2022 the working group received the completed questionnaire as well as the national legislation, translated into English. In view of this, the Peer Review team has been set up and started to work on the assessment of the documents received.

The Chair of Working Group 5 also participated in the ICAO RAIO ICM CP Annual Meeting wherein on the second day during the workshop, he delivered a presentation on the Peer Review (phase 1) Process and the results thereof.

4.6) Working Group 6: Safety Recommendations

4.6.1) Overview

In 2022, WG6 continued to support the European Commission and EASA with the improvement of the new European Safety Recommendation Information System (SRIS2).

The Working Group continued to participate and collaborate in international and European fora, including the collaboration with the ICAO AIGP Working Group 14 with regard to the familiarisation with the new Safety Recommendation of Global Concern (SRGC) definition in ICAO Annex 13, and the possible revision of the guidance for the classification of a safety recommendation as such. The group kept also providing support to the E2 Steering Board (ESB), E2 Steering Committee and Network of Analysts.

Furthermore, WG6 focus has been oriented toward following areas:

4.6.2) Cooperation between NAAs and SIAs with reference to Annex 13 type of Occurrence Reports (OR)

WG 6 had been formally tasked to facilitate NAA/SIA collaboration within the E2 with reference to Annex 13 type of Occurrence Reports (OR) described in Chapter 3 and worked closely with EASA E2 project managers and ESB members to define practical solutions to the challenge of processing above mentioned peculiar occurrences.

The two ad-hoc ESB held on 28 June and 21 September 2022, via teleconference, have been a unique opportunity to have at the same table NAAs and SIAs from several European countries with the aim of harmonizing their procedures on the use of ECCAIRS.

Participants were representatives from:

- European Commission;
- EASA;
- German CAA and SIA;
- Estonian NAA and SIA;
- French NAA and SIA;
- Italian NAA and SIA;
- Danish NAA and SIA;
- Spanish NAA;
- Romanian NAA and SIA;
- Dutch NAA and SIA;
- Latvian NAA.

4.6.3) Study on safety actions

Following the feedback received from the Safety recommendation workshop held in Toulouse on 19, 20 October 2021, the WG6 initiated a study on the subject of safety actions during a safety investigation. Initially the group focused on elaborating a draft definition for a "safety action". A questionnaire was distributed to all ENCASIA SIAs and its outcomes showed different approaches to safety actions by different Member States. The outcome of the study will be presented to the ENCASIA Plenary meeting in 2023.

4.6.4) Safety Recommendations received from Third Countries

Article 18 of Regulation (EU) No 996/2010, at point 5, states that «Safety investigation authorities shall record in the central repository all Safety Recommendations received from third countries».

In order to comply with above requirement, ENCASIA approved a procedure that will allow ENCASIA Safety Investigation Authorities to enter in the ECR, through the SRIS2, those Safety Recommendations coming from safety investigations conducted by third country Safety Investigation Authorities for which they have accredited representatives for.

Also, ICAO Annex 13, at provision 8.3, states that « If safety recommendations are addressed to an organization in another State, they shall also be transmitted to that State's accident investigation authority». This means that Safety Investigation Authorities should be able to receive recommendations not only when they are accredited for a foreign investigation, but also when Safety Recommendations result from other sources, including safety studies.

However, the current EU regulation doesn't require to insert responses and response assessments for these Safety Recommendations received from third countries, as it obliges Safety Investigation Authorities to undertake this only for Safety Recommendations issued by ENCASIA Safety Investigation Authorities.

Furthermore, it has been agreed that EASA will enter in the system all safety recommendations received from third country Safety Investigation Authorities addressed to EASA and/or to the European Commission.

This new procedure has been implemented as of 1st January 2022.

4.7) Working Group 7: ICAO Matters

Working Group 7 has the aim of coordinating positions on ICAO proposed updates and amendments regarding ICAO Annex 13 as well as to maintain and update a mapping of Regulation (EU) No 996/2010 against Annex 13. The latter would be used when a Member State would be audited by ICAO or to update the Electronic Filing of Differences (EFOD) online system provided by ICAO. The group would also assist in identifying areas in Annex 13 for which Regulation (EU) No 996/2010 alone does not ensure full compliance and where other SIA procedures or updates in national law might be needed.

Moreover, the Working Group will also coordinate ENCASIA views to help EU member States in responding to ICAO State Letters when there are proposals for amendments to Annex 13, wherein the Working Group would offer competence and specialisation for a common standpoint in relation to State Letters, as well as proposed changes to ICAO guidance documents, if any. This would result in a common joint recommendation for a specific State Letter, which would not be binding on Member States but would provide assistance.

During 2022, the Working Group continued working on the draft Terms of Reference, including a formal procedure to define the process and timeline of all the key tasks. The Working Group also started working on the ICAO State letter AN 6/1.2-22/85 dated 14 October 2022 and created a table for easy identification of proposed amendments.

Chapter 5:
DATA ANALYSIS OF THE SAFETY RECOMMENDATIONS INFORMATION SYSTEM

ENCASIA is required by Regulation (EU) No 996/2010, Article 7.3(g), to analyse the safety recommendations that have been entered onto SRIS and to identify important Safety Recommendations of Union Wide Relevance (SRUR). This analysis is carried out by WG6.

While this Annual Report refers to data that was entered onto SRIS up to 31 December 2022, the analysis of the data was carried out by WG6 on data available on SRIS up to 6 December 2022.

5.1) SRIS overview

As of 12 January 2023, 4,305 safety recommendations had been recorded on SRIS, of which 171 were issued in 2022.

Comparing the number of safety recommendations, it was noted a marginal misalignment between the SRIS 2 and the Public SRIS data. This is due to a change in the logic of publishing vs sharing of safety recommendations and some discrepancies in Local Project Managers (LPMs') system operations. Thanks to the new software updates implemented and the training planned, above misalignment should disappear.

The following charts provide a summary of the safety recommendations on SRIS.

Chart 1 shows the total number of safety recommendations issued by each state (blue) and the SRs recorded on SRIS in 2022 (orange). Of note, due to Brexit, the UK safety recommendations that have been issued after 2020 are not included in the ECR-SRIS and, consequentially, in the graph below.

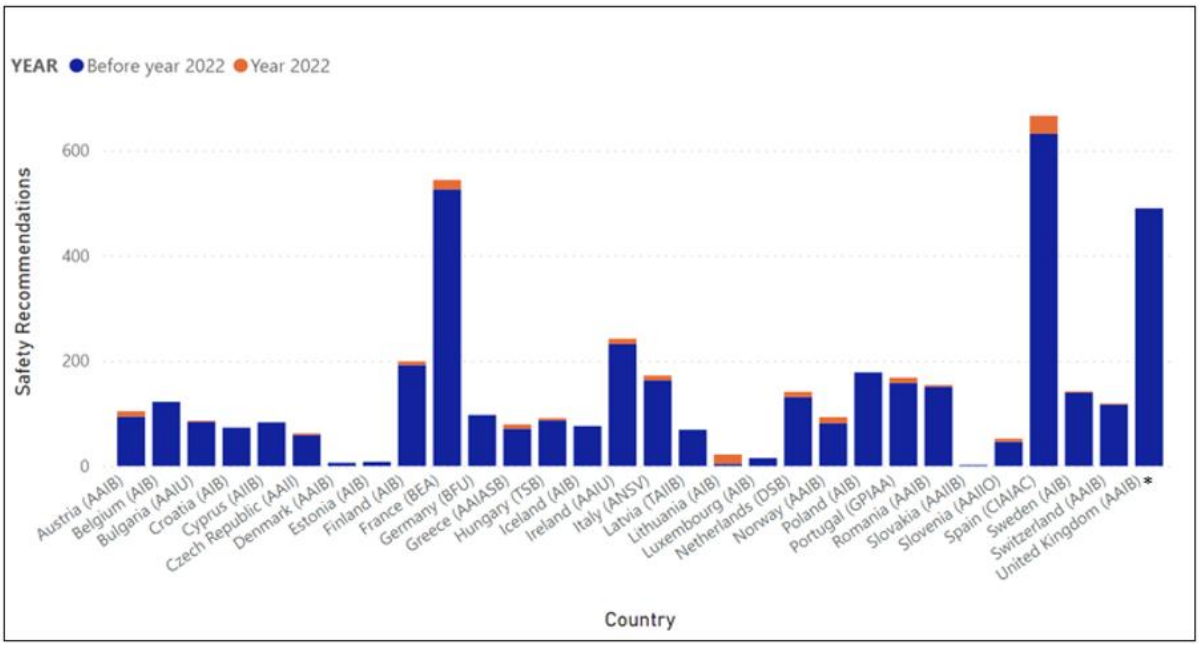

Chart 1. Summary of safety recommendations recorded on SRIS by State[3].

Chart 2 shows the number of safety recommendations recorded on SRIS by year.

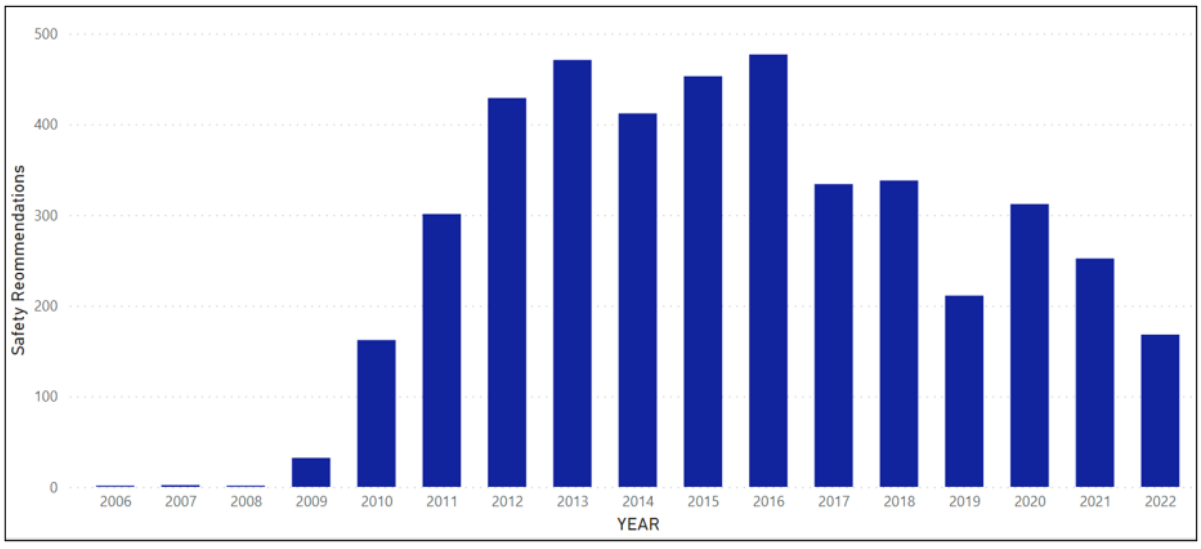

Chart 2. Number of safety recommendations recorded on SRIS by year.

[3] Due to Brexit, the UK safety recommendations that have been issued after 2020 are not included in the ECR-SRIS

It should be noted that there is usually a delay in the entry of SRs into SRIS by SIAs. This generally leads to an increase of the previous year's SR number by approximately 15% within the first months of the following year. The delays in the implementation of SRIS2 and the initial difficulties related to the stability of the system, possibly impacted even further the number of SR not yet inserted in the database.

5.2) Safety Recommendations of Union-wide Relevance

A Safety Recommendation of Union Wide Relevance (SRUR) is defined as meeting one or more of the following criteria:

- The deficiency underlying the safety recommendation is systemic, not related to a specific aircraft type, operator, manufacturer component, maintenance organisation, air navigation service and/or approved training organisation, and is not solely a national issue, or;
- There is a history of recurrence across Europe of the relevant deficiency.

In 2022, there were 11 safety recommendations that were assessed as being a SRUR and covered the following safety issues, which are expanded in Appendix 2. They cover the following subjects:

- Procedures update in the flight manual relating to situations of doubtful or erroneous altitude.
- Update of Safety Management Programme, Operational Manual and additional training in the simulator for a specific operator/maintenance organization.
- Improvement of meteorological information provided on board aircraft and on radar screens of air traffic controllers.
- Training of Aeromedical Examiners in Assessment of Elderly Pilots.
- Medical topics.

5.3) Safety Recommendations of Global Concern

12 Safety Recommendations issued in 2022 by ENCASIA Member States were classified as being of Global Concern, as outlined in Appendix 2.

5.4) Safety Recommendations topics

Each safety recommendation is assigned a topic that best indicates the area that the safety recommendation addresses. The topics are allocated to three levels, with Level 1 being the highest and covering four topics. Each Level 1 topic is further broken down into sub-topics.

Chart 3 shows the Level 1 topics with the number of those assigned to each category. From Chart 3, it can be seen that most of the safety recommendations raised during 2022, as in previous years, were related to procedures or regulations.

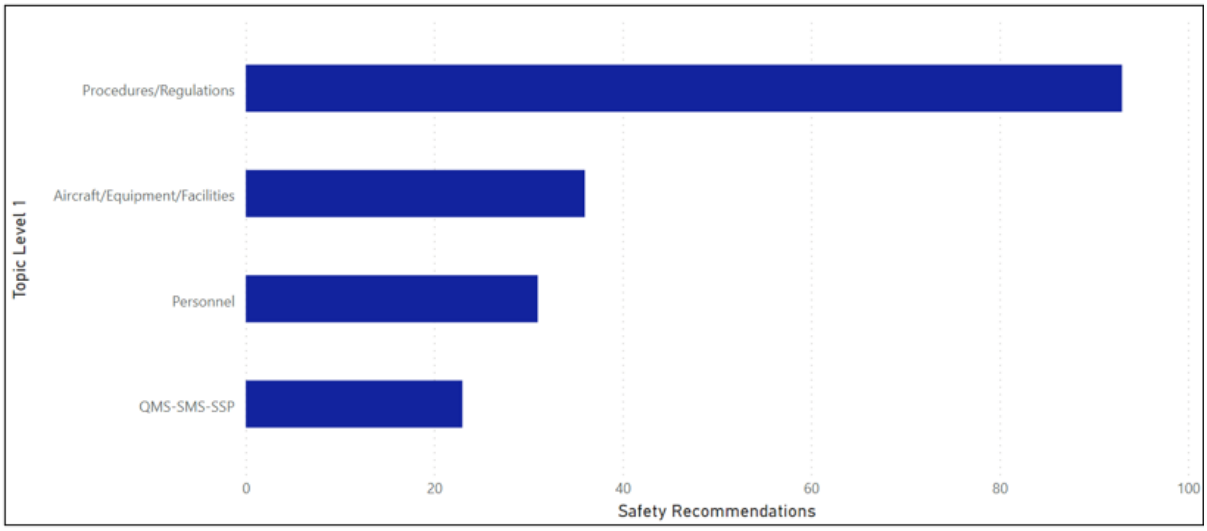

Chart 3. Level 1 safety recommendation topics.

Charts 4, 5, 6 and 7 show the Level 2 topics for each of the higher level 1 topics. Chart 8 shows a further breakdown of the topics related to aircraft equipment, with the majority of these related to Aircraft Systems.

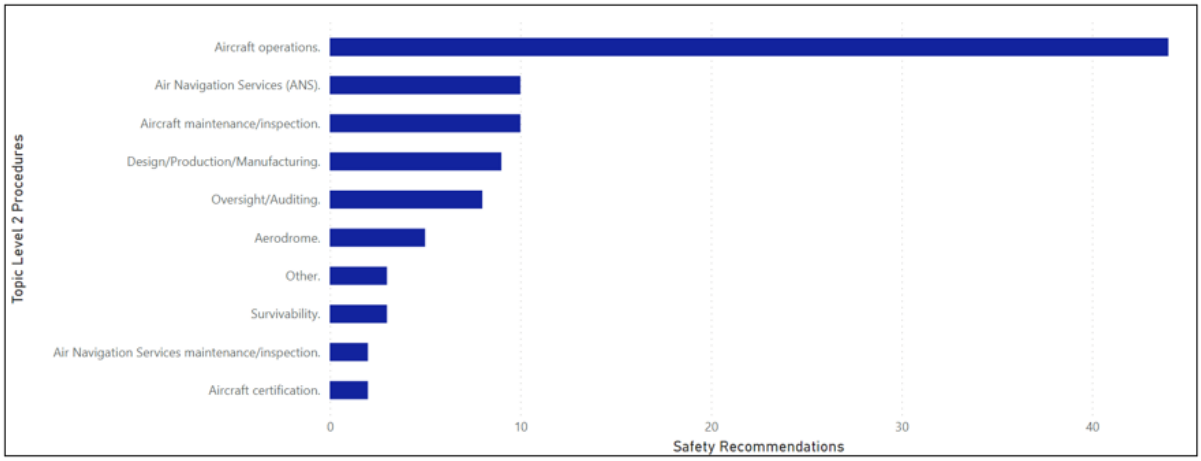

Chart 4. Level 2 safety recommendation topics relating to Procedures and Regulations.

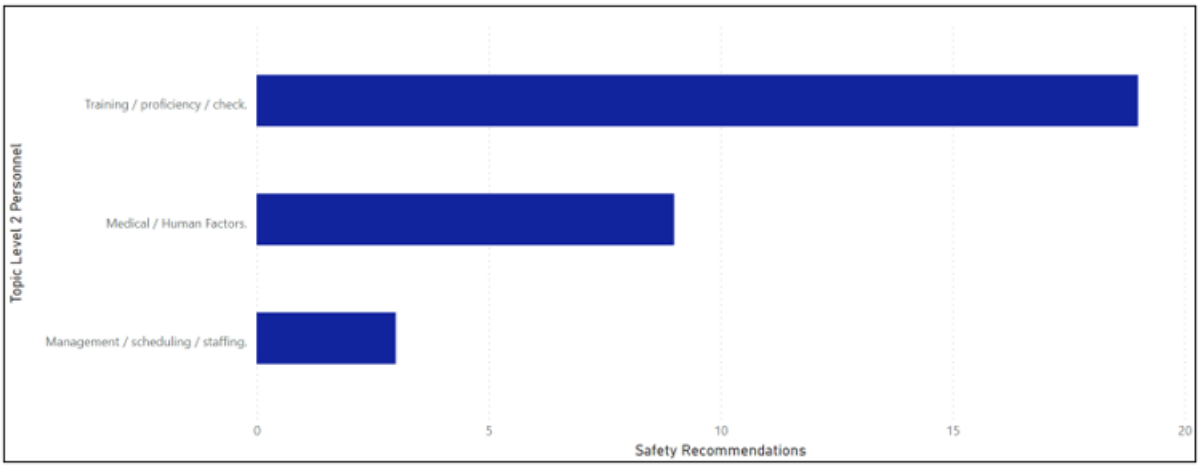

Chart 5. Level 2 safety recommendation topics relating to Personnel.

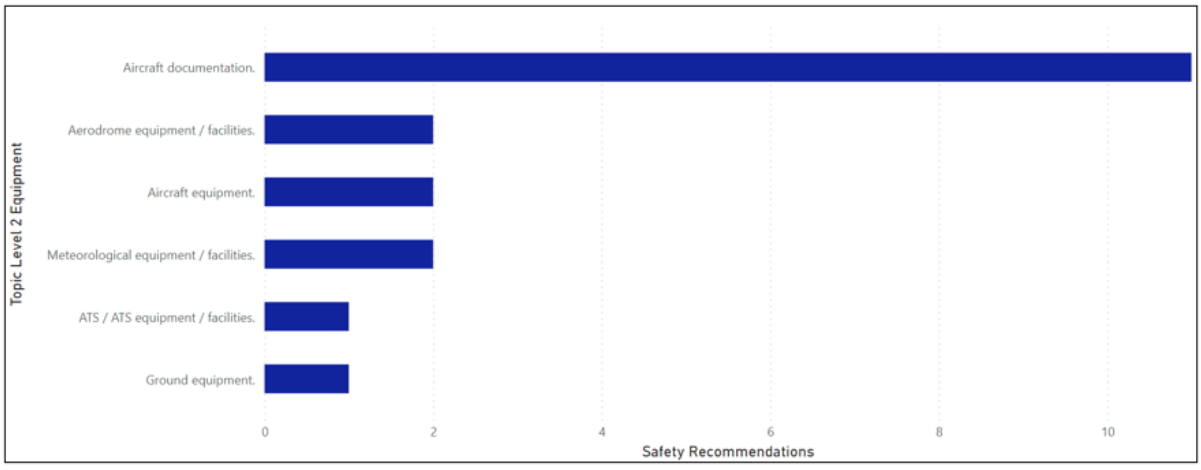

Chart 6. Level 2 safety recommendation topics relating to Aircraft Equipment / Facilities.

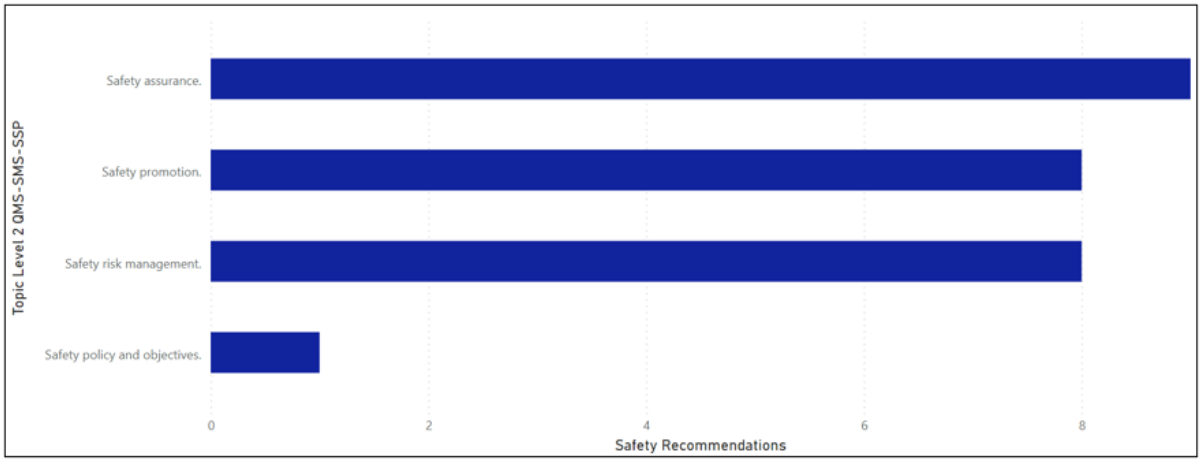

Chart 7. Level 2 safety recommendation topics relating to QMS/SMS/SSP.

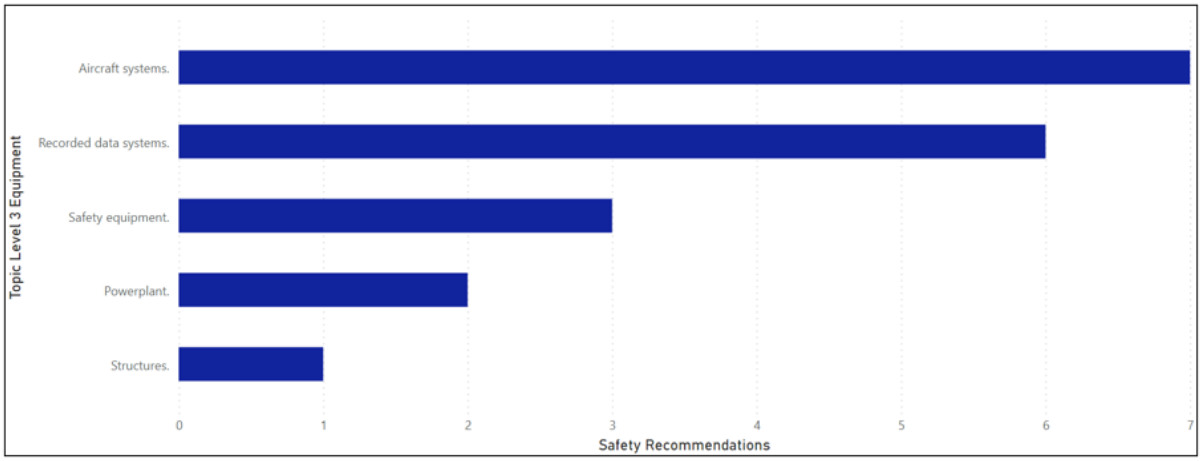

Chart 8. Level 3 safety recommendation topics relating to Aircraft equipment.

5.5) Safety Recommendations addressees

Most of the safety recommendations issued during 2022 were addressed to EASA (20%), followed by Civil National Aviation Authorities (NAA) (18%), Design Organizations (15%) and Aircraft Operator (12%). The term 'National Authority' is used to refer to authorities that are not involved in the regulation of Civil Aviation (i.e. State Ministers, National associations, etc.).

The number of safety recommendations addressed to EASA was 35. WG6 reviewed this data by cross referencing with EASA, which reported 33 safety recommendations addressed to the agency in 2022 by ENCASIA Member States. This is mostly because the issue date recorded in the SRIS2 is not always the same as the date on which the final report was sent to EASA.

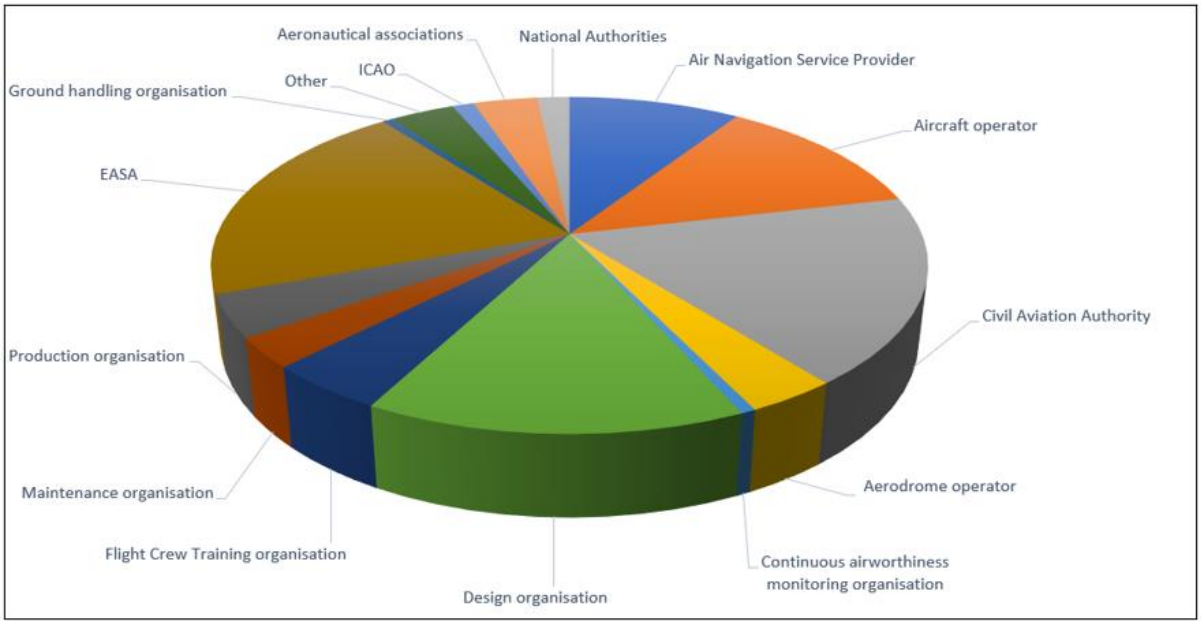

Chart 9. Addressees of Safety Recommendations issued in 2022.

5.6) Safety Recommendations response assessment by SIA

Article 18 of Regulation (EU) No 996/2010 requires addressees to respond within 90 days of receiving a safety recommendation. Within 60 days of the receipt of the reply, the SIA shall inform the addressee whether or not it considers the reply adequate and give justification when it disagrees with the decision to take no action.

Of the 171 safety recommendations issued in 2022, 33 (19%) are still awaiting a response, while 13 (8%) responses are still awaiting the assessment of SIAs.

In 2021, 50 (32%) are still awaiting a response, while 41 responses are still awaiting the assessment of SIAs.

A breakdown of the SIA's assessment of responses to safety recommendations issued during 2021 is summarised in Chart 10.

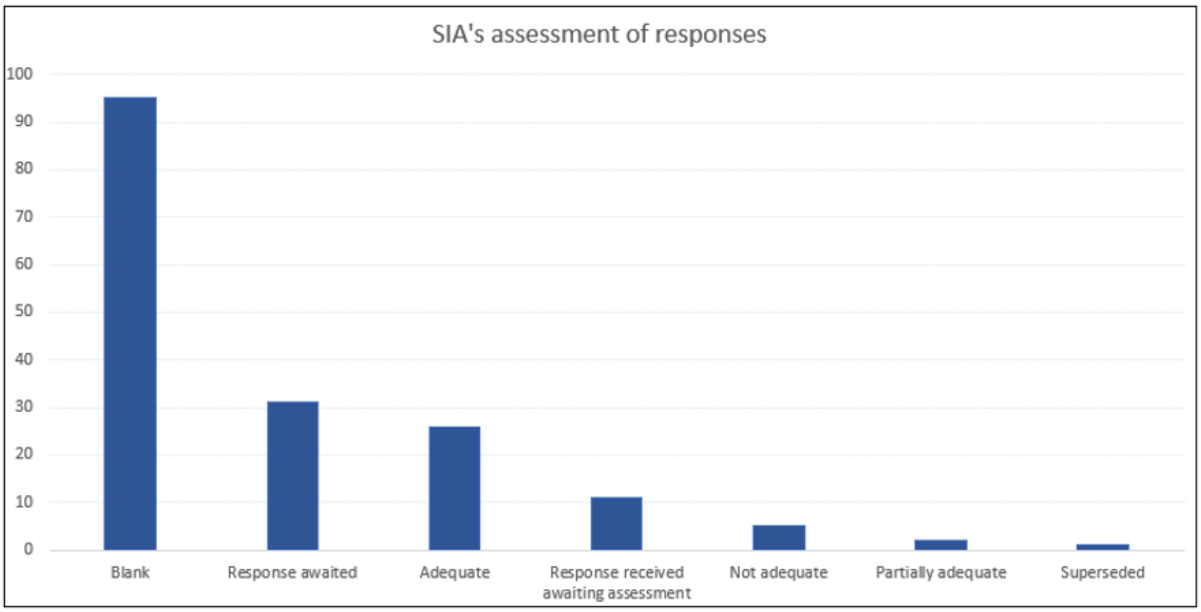

Chart 10. SIA's assessment of responses to safety recommendations issued in 2022

Chart 11 shows the current response assessments for previous years.

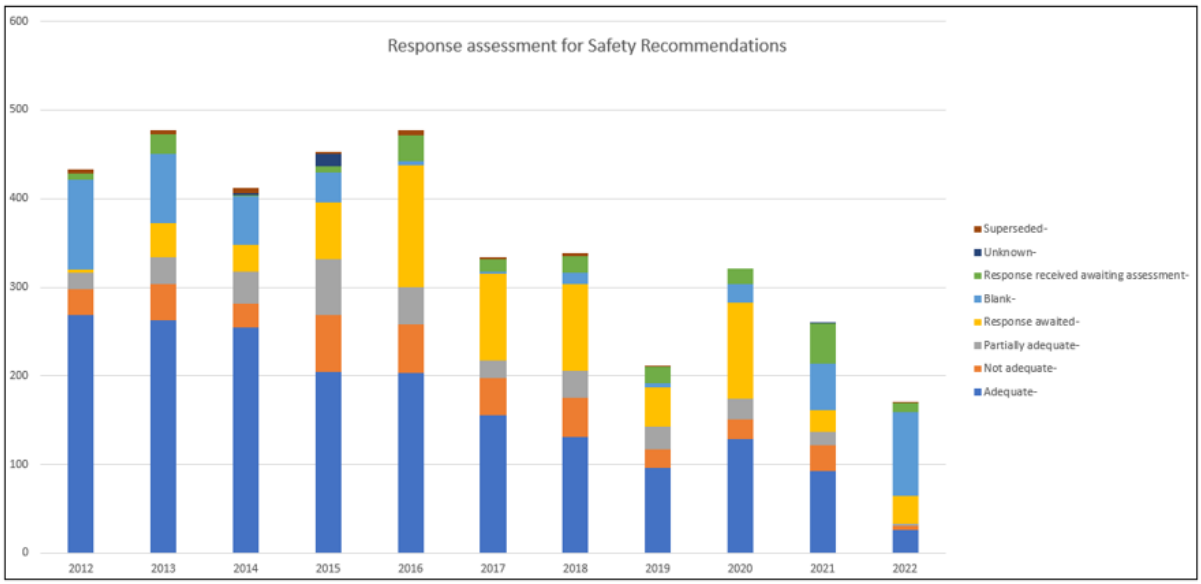

Chart 11. Response assessments for safety recommendations

5.7) Update on 2021 Safety Recommendations

The ENCASIA Annual Report for 2021 stated that as of 28 January 2022, 231 safety recommendations had been recorded on SRIS for 2021. An additional 29 safety recommendations for this period were entered during 2022, for a total of 260 safety recommendations recorded on SRIS as having been issued in 2021.

5.8) Safety studies

During 2022, 5 safety recommendation has been generated from safety studies. In particular, the five safety recommendations were issued by the ANSV (Italy) and addressed to several national authorities based on a study about the interference of gliders' and fire fighter's activities:

- Addressee: Corpo nazionale dei Vigili del fuoco - Raise awareness among the flight crews of the National Fire Fighter's air fleet about providing via radio to the appropriate ATS agencies, as much information as possible regarding the area of operation. [Recommendation ANSV-6/SA/5/22]
- Addressee: Aero Club d'Italia - To communicate, well in advance, the schedule of gliders competitions, supplemented with the telephone contacts of the respective Directors. [Recommendation ANSV-5/SA/4/22]

- Addressee: Aero Club d'Italia - To communicate, well in advance, the schedule of gliders competitions, supplemented with the telephone contacts of the respective Directors. [Recommendation ANSV-4/SA/3/22]
- Addressee: Aero Club d'Italia - To instruct all directors of gliders competitions to raise awareness among participants during the pre-competition briefing and monitor SNIPC for firefighting activities. [Recommendation ANSV-3/SA/2/22]
- Addressee: Dipartimento della Protezione civile - Consider the possibility to allow Aero Club d'Italia access to the SNIPC application, in order to properly reschedule gliders competitions and provide useful information to participants. [Recommendation ANSV-2/SA/1/22]

5.9) Safety Recommendations from Third Countries (TCSRs)

During 2022, no safety recommendations from third countries were addressed to European authorities (EC, EASA, etc.) or ENCASIA area stakeholders (manufacturers, design organizations, operators, national authorities, etc.).

CONCLUSIONS (THE WAY FORWARD)

ENCASIA continues to strive with a comprehensive Work Programme in various areas pertaining to the 7 Working Groups, which will be managed by a new Chairman and Deputy Chairman.

The EMSS continues to be developed to assist in future investigations, with a system to maintain information on key SIA capabilities and abilities and key investigator competencies. The Phase 2B of the Peer Review will kick off in 2023 with two pilot Peer Reviews, which will then proceed with the Peer Review process of other SIAs. ENCASIA members and observers will also have a new depository system for documents, CIRCA BC, which will replace Drupal.

ECCAIRS 2 and the new SRIS database remain an ongoing working project; wherein 2023 will also envisage the organization of a training session on the latest release of the SRIS2 for Local Project Managers. Moreover, the preparations will commence for the next ENCASIA Workshop on Safety Recommendations, which will be held for SIAs and operators. ENCASIA will also produce its first recommendations to member SIAs with regard to the ICAO State Letter on Annex 13.

Financially, 2023 will also see ENCASIA applying for a new grant, with the possibility of the said grant being managed differently to the current practice of the asbl. With the aim of ENCASIA becoming more robust from a financial point of view, there is the possibility of ENCASIA creating an overhaul in its current way of managing funds received from the Commission by eliminating the notion of the asbl and entrusting the French SIA (BEA) to manage the ENCASIA grant on behalf of the other members with the creation of a special ENCASIA fund.

Furthermore, ENCASIA and or its members will continue to attend and participate in International and European fora, including the RAIO ICM CP meetings, the International Civil Aviation Organisation (ICAO) Accident Investigation Group Panel (AIGP), including Working Group 14 thereof, the E2 Steering Board, Steering Committee and Network of Analysts, as well as international conferences organised from time to time.

It is also important to be mindful of the continued challenges that SIAs face with regard to investigations that result from civil spaceflight operations, drones, parachute operations as well as electric powered aircraft and the possible legal framework and safety investigation procedures that would be required. It would also be interesting for SIAs to determine possible recommendations from military aircraft accident should they be of interest for civil aviation.

APPENDICES

Appendix 1: List of 2022 fatal accidents involving commercial activities

Appendix 2: Safety Recommendations of Union-wide Relevance and of Global Concern

Appendix 1: List of 2022 fatal accidents involving commercial activities

Flight Global mentioned that the world's airlines suffered 12 fatal accidents in 2022, causing a total of 229 deaths[4]. Comparing these numbers to those in 2021, the figures then were 15 and 134 respectively. Therefore, albeit 2022 saw less fatal accidents, the total deaths amounted to nearly double those of 2021.

The accident with the highest number of fatalities was that of China Eastern Airlines, Boeing 737-600. On 21 March, the aircraft was en route from Kunming to Guangzhou on a domestic scheduled flight. It was cruising normally and without incident at about 29,000ft until close to the point at which it might normally have begun the descent towards its destination airport. At that point it began a descent without any communication with ATC. The descent profile was very steep and at high speed. During the descent there was little deviation from the heading maintained during the cruise and questioning calls from ATC went unanswered. All 123 passengers and nine crew members lost their lives.

Apart from the loss of the China Easters Airlines flight, the other fatal accidents in 2022 involved small or medium-sized turboprop aircraft, with the death toll not exceeding 22 persons. Moreover, when compared to the previous year, 2021 also saw only one fatal accident involving a large passenger jet, namely a Sriwijaya Air Boeing 737-500 which crashed in Indonesia, wherein all 62 people on board died on the 9th January 2021.

In 2022, en-route accidents caused the largest proportion of fatal crashes, specifically 6 out of the total 12 fatal mishaps, including the China Easters Airlines flight. The other accidents occurred either in runway approach, cruising or climbing, whilst take-off or during the final approach.

All of these accidents did not involve aircraft registered in a European Member State. Moreover, except for one aircraft, they were not manufactured in a European Member State.

Regarding the State of occurrence, only one accident occurred in the European Union. Eight crew were killed when the Meridian-operated transport crashed in Greece during

[4] https://www.flightglobal.com/air-transport/deadly-airline-accidents-reduced-but-fatalities-climbed-in-2022/151508.article

a weapons delivery from Serbia to Bangladesh with an Antonov An-12 freighter. Greece SIA is conducting this investigation.

ENCASIA member SIAs participate in the investigation of three other occurrences from the list, as accredited representatives. Those are: 5H-MZA (Comoros): BEA under a cooperation agreement; 9S-GPK Let 410 (RD Congo) Czech SIA as ACCREP State of Design; 5H-PWF ATR (Tanzania) BEA as ACCREP State of Design.

Table 1. List of 2022 fatal accidents involving commercial activities (source: Flight Global)

Note: Military and State transport aircraft accidents were not included in the table.

#	Date	Location	Aircraft type (registration)	Air carrier	No. of fatalities crew/pax	Phase
1.	26 February	Oshore Moheli, Comoros Islands	Cessna 208B Grand Caravan (5H-MZA)	AB Aviation	2/14	Runway approach
2.	21 March	Tengxian, Guangxi Province, China	Boeing 737-800 (B-1791)	China Eastern Airlines	9/123	En route
3.	13 April	Heyburn, Idaho, USA	Cessna 208B Grand Caravan (N928JP)	Gem Air	1 (total occupants: 2)	Runway approach
4.	22 April	Mikhailivka, Ukraine	Antonov An-26-100 (UR-UZB)	Constanta Airlines	1/3	Cruise
5.	11 May	Near Nanga Eboko, Cameroon	De Havilland Canada Twin Otter 400 (TJ-TIM)	Caverton Helicopters	2/9	En route
6.	29 May	Jomsom, Nepal	De Havilland Canada Twin Otter (9N-AET)	Tara Air	3/19	En route
7.	16 July	West of Kavala airport, Greece	Antonov An-12 (UR-CIC)	Meridian	8	En route
8.	4 September	Mutiny Bay, Washington, USA	De Havilland Canada DHC-3T Turbine Otter (N725TH)	Friday Harbor Seaplane Tours	1/9	En route
9.	9 September	Near Bukavu-Kavumu airport, Democratic Republic of Congo	Antonov An-28 (9S-GAX)	Air Kasai	3	Climb
10.	20 September	San Antonio del Estrecho airport, Peru	BAE Systems Jetstream 31 (OB-2152)	SAETA Peru	0/1 (total occupants 2/15)	Take-off
11.	3 November	Democratic Republic of Congo	Aircraft Industries L410 (9S-GPK)	Goma Express	2	En route
12.	6 November	Near Bukoba airport, Tanzania	ATR 42-500 (5H-PWF)	Precision Air	2/17 (total occupants 4/39)	Final approach

Appendix 2: Safety Recommendations of Union-wide Relevance and of Global Concern

A) Safety Recommendations of Union-wide Relevance

Procedures update in the flight manual relating to situations of doubtful or erroneous altitude.

The BEA (France) opened a safety investigation for a serious incident occurred to a Cessna 525 on 14 August 2020 at Paris-Le Bourget due to a simultaneous fault on a PFD screen and one of the two air data systems during take-off.
In the safety report for subject event, the BEA recalled a safety recommendation made in 2010 which, to date, has not been applied to aircraft other than the Pilatus PC 12.

Consequently, the BEA recommended to EASA that:

- procedures in the flight manual relating to situations of doubtful or erroneous altitude be completed or developed by manufacturers. Furthermore, whereas the investigation carried out ten years later showed that there are still incomplete procedures on what to do in the event of inconsistent altitude information, the BEA recommended to EASA, in liaison with the primary airworthiness authorities of the airplanes, to implement the recommendation by not limiting it to the particular case of the Pilatus PC12.
  [Recommendation FRAN-2022-013]

Update of Safety Management Programme, Operational Manual and additional training in the simulator for a specific operator/maintenance organization.

AAIU (Bulgaria) issued three safety recommendations following an investigation for a serious incident occurred to an Airbus A320 on 22 May 2021 due to an engine failure during climb out from LBSF Sofia (Bulgaria):

- Lufthansa Technik Sofia to provide in its safety management programme appropriate actions related to the prevention of violations of the line maintenance process. ***[Recommendation BG.SIA-2021/02/01]***

- The operator Bulgaria Air to include in the crew training program a simulator training exercise, which would simulate the circumstances arising from the serious accident. ***[Recommendation BG.SIA-2021/02/02]***
- The operator Bulgaria Air to include in the OM of the organization a procedure which ensures that the flight crew on each flight is informed of minor repairs carried out during the line maintenance of the aircraft. ***[Recommendation BG.SIA-2021/02/03]***

Improvement of meteorological information provided on board aircraft and on radar screens of air traffic controllers.

The BEA (France) published a safety report with two safety recommendations for an accident occurred to a Boeing B737-800 on 25 July 2021 en route to Nice due to turbulence encountered en-route with severe injury to a cabin crew member and emergency landing at destination.

In 2008, the BEA published a study on Turbulence in Air Transport. This study looked at accidents and incidents in commercial air transport that occurred en-route, where the turbulence encountered was caused by atmospheric conditions. The study therefore excluded events where an input on the controls was the main cause of the accelerations encountered and those caused by wake turbulence. In this scope, the BEA recorded 48 occurrences between 1995 and 2007 in France or abroad to aircraft operated, registered or manufactured in France. Nineteen of these occurrences for which the file was particularly comprehensive, were used to identify the contributing factors in this type of event. In particular, this study concluded that approach controllers and en-route controllers were not systematically provided with a display of the storm zones superimposed on the air traffic image, which might be detrimental to pilot/controller synergy. This study concluded that, generally speaking, the sharing of information held by the various stakeholders could offer a consistent level of knowledge of the situation conducive to the development of strategies by crews and controllers.

Consequently, the BEA recommended that:

- EASA and Eurocontrol work to implement data link systems for the communication of meteorological information, enabling this information to be consolidated and distributed to cockpits and control positions;

- within the framework of the application of the aforementioned recommendation, the DGAC introduce tools, and define associated work methods, enabling en-route and

approach controllers to display storm zones and turbulence zones on their control screens.

Following this recommendation, Eurocontrol indicated that it considered the display of meteorological information on the radar screens of air traffic controllers to be the responsibility of European air navigation service providers, their national authorities and EASA.

EASA replied that it would look into the technical possibilities of redistributing meteorological information to cockpits in real time. The redistribution of this information to air traffic control screens was not on the agenda at the date of publication of this report.

The DGAC's response implied that there was no short-term plan for displaying meteorological information on controller radar screens.

In 2015, following the serious incident occurred to an Airbus 320 on 2 August 2013 near Bordeaux, the BEA recommended that:

- The DGAC ensure that the meteorological information made available to controllers enables them to give the most comprehensive and relevant flight information possible and enhance the crew's situational awareness, in particular in cases of hailstorms.

The French Air Navigation Service provider (DSNA) replied that it was planning to gradually integrate meteorological information into controller display tools.

In the framework of the SYSAT project, the need to integrate the display of storm zones directly onto the radar screen was incorporated in the specifications. Its effective implementation could not however be guaranteed at this stage, as it depended on the integration possibilities provided by the equipment that was to be selected from the different manufacturers.

With respect to the 4FLIGHT programme, the DSNA informed the BEA that the integration of this function on the radar screen had also been taken into account but that the lead time could not be specified at this stage.

The BEA regretted that the definition and lead time for deploying these developments remained uncertain. At the date of publication of this report, the BEA has no knowledge of the addition of this functionality in the 4FLIGHT system being deployed in Metropolitan France.

The serious incident on 25 July 2021, the subject of mentioned report, occurred in Italian airspace. As in France concerning the display of meteorological information on

air traffic control screens, storm phenomena are not displayed on the radar screens of Italian air traffic controllers. Consequently, the BEA recommended that:

- whereas the display of meteorological phenomena on air traffic control radar screens is likely to enable air traffic controllers to anticipate possible crew requests to modify flight paths and to implement, if needed, transfer strategies outside of the standard route;
- whereas this situation can be extrapolated to different air navigation service providers in Europe;
- whereas the recommendations already issued on the topic have not come to fruition;

EASA, in coordination with Eurocontrol:

1. conduct a global review of existing systems and those being developed that display near-real-time weather images on the radar screens of air traffic controllers, and their use by air navigation service providers as part of the flight information service, with the aim of facilitating meteorological avoidance strategies developed by flight crews,
2. on the basis of the above review and other available data, identify the system specifications, tools and working methods that would be most suitable for use by the European air navigation service providers in order to facilitate weather avoidance strategies developed by flight crews,
3. promote the implementation and use of such systems, tools and working methods by the European air navigation service providers in order to facilitate meteorological avoidance strategies developed by flight crews.
   [Recommendation FRAN 2022-014]

The report highlighted also that many different generations of weather radar exist today. The oldest systems offer limited performance and/or require specific training to ensure they are used correctly (e.g. manual selection of tilt and gain). In addition, the weather radar can only detect precipitation and some hazards associated with precipitation. The effectiveness of the detection depends on the size, composition, phase (liquid/solid) and the concentration of droplets (water) or particles (ice).

Moreover, pilots must be familiar with the techniques for using the different radars (adjustment, parameters and analysis of the display) and know the limitations of the system used.

Heavy precipitation can, in addition, hide the meteorological situation behind a cell shown on the radar screen (mitigation phenomenon), and radar returns do not always provide a comprehensive image of the situation behind the strongest cells.

Consequently, the BEA recommended that:

- whereas the effectiveness of the detection capability of onboard weather radars is variable;
- whereas weather radars do not always provide the flight crew with the information required to safely navigate through large areas of convective activity;
- whereas the provision of observed and forecast high-resolution meteorological information, such as images derived from satellites and ground weather radars, is likely to improve the crew's situational awareness;

EASA promote systems and equipment providing advanced meteorological information on board aircraft that is updated in near real-time.
[Recommendation FRAN-2022-015]

Training of Aeromedical Examiners in Assessment of Elderly Pilots.

The SIA (Finland) opened a safety investigation for an accident which occurred to an amateur-built aircraft at Hyvinkää aerodrome on 27 September 2021 during a training flight.

Investigation revealed that the 78-year-old pilot receiving instruction died from a bout of illness on the accident site. He had been diagnosed with several cardiovascular diseases, which were under regular hospital monitoring. The risk of incapacitation due to aging and multiple diseases had not been recognized, and the validity of his medical certificate had been extended.

Consequently, the SIA (Finland), in its final report, issued three safety recommendations, of which, the one below was considered SRUR:

- The European Aviation Safety Agency improves aeromedical examiners' knowledge and skills in the assessment of the state of health of elderly comorbid pilots.
  [Recommendation L2021-03 (2022-S26)]

Medical topics.

The BEA issued 2 safety recommendations for an accident occurred to a Cirrus SR22 on 28 September 2020 at La Chevillotte with subject of increasing the knowledge of effects and consequences of altitude hypoxia on operation of flight and the use of pulse oximeter.

In particular, the BEA recommended that:

- in the absence of specific training and information about post-hypoxic impairments;

- in the absence of up-to-date, referenced documents addressed to pilots concerning altitude hypoxia and post-hypoxic impairments;

- given that paragraph NCO.OP.190(a) gives the pilot-in-command freedom to judge whether to carry supplemental oxygen;

- whereas the improvement in performance of non-high-performance light aircraft permits flights at higher and higher levels;

- EASA amend the brochure, "Preventing Hypoxia" to include information about mild hypoxia and post-hypoxic impairments along with their symptoms and encourage pilots to be more prudent when the limits mentioned in paragraph NCO.OP.190(b) are exceeded and supplemental oxygen is not being used.
  [Recommendation FRAN-2022-003]

And:

- in the absence of up-to-date, referenced documents addressed to pilots concerning the use of the pulse oximeter as a means of determining the flight envelope in which supplemental oxygen would not be necessary;

- whereas the pulse oximeter, used on its own, cannot be considered a sufficiently reliable system to permit an objective assessment of the oxygen pressure in arterial blood;

- whereas the pulse oximeter, used on its own, cannot therefore be used to assess the need for supplemental oxygen;

- given that regulatory requirement NCO.OP.190(a) gives the pilot-in-command freedom to judge whether to carry and use supplemental oxygen;

- EASA amend and update the brochure, "Preventing Hypoxia" in order to delete references to the pulse oximeter as a means of determining supplemental oxygen needs above the thresholds mentioned in regulatory requirement NCO.OP.190(b), and limit reference to the pulse oximeter to that of an additional means to ensure that there is a sufficient oxygen supply during the flight phases in which supplemental oxygen is used.
  [Recommendation FRAN-2022-004]

The BEA (France) opened a safety investigation on an accident to a helicopter Airbus AS350 on 07 March 2021 at Touques (Calvados). Shortly after the engine start-up, the helicopter was in hover flight and then climbed vertically facing trees, the highest

treetop being at 23 m. The helicopter was at a height of around 19 m when the blades of the main rotor struck some branches. Under the impact, the tail boom separated from the helicopter. The helicopter yawed about itself while flying forward, fell and then struck the ground.

The BEA has issued two safety recommendations addressed to EASA with respect to training in the use of confined areas and raising awareness about the consequences of ageing on the performance of the visual system. The second one being considered a SRUR.

Physiological age is not to be correlated with chronological age. With advancing age, the time required to process light information increases and the object detection thresholds are higher. Visual acuity decreases as does the sensitivity of the retina, sensitivity to contrasts, and resistance to glare. These impairments make it difficult to detect small objects.

On the day of the accident, the 74-year-old pilot and the 70-year-old passenger were facing a tree whose branches struck by the main rotor were in the shade. The helicopter and the treetops were lit by low sunlight under a clear, cloudless sky. In these conditions, it was difficult for the two people on board to detect the immobile obstacles represented by the leafless branches of the tree in a shaded area with low light contrast, in the presence of better lit areas in the field of vision.

Furthermore, accommodation decreases, becoming almost zero at around the age of 70; from then on, wearing progressive lenses becomes essential in aviation. Generally speaking, adaptive abilities decrease in terms of speed and strength. This results, in particular, in a deterioration of the reaction to a stimulus in peripheral vision as well as greater difficulty in quickly shifting attention from one object to another (flexibility).

Vision is not the only function affected by ageing. Psychomotor responses are also affected in terms of speed and quality. As a result of this, the response to a visual stimulus is impaired in its entirety. For tasks which require finesse and skill, such as a helicopter take-off from a confined area, adapted training and experience in these situations can limit the impact of ageing on their safe performance, provided that the pilots concerned are aware of these effects of ageing and the limits of the compensation mechanisms they can implement.

While the current regulations do not prohibit the Aero-Medical Examiner (AME) from informing pilots of this process, it seems necessary to provide the AME with a

framework which will enable him or her to characterize, as needed, the beginning of this deterioration, in order to permit him or her to discuss with the pilots more freely, the consequences of ageing on their flying activities.

This information is at the heart of the role that the AME can have to raise awareness and promote safety.

Consequently, the BEA recommended that:

- whereas one of the most characteristic physiological consequences of the beginning of ageing is the impairment of vision;

- whereas chronological age is not to be correlated with physiological age; to characterize all of the pilot's vision performance which degrades irremediably with age and in which visual acuity is only one element;

- whereas the regulations may encourage AMEs to limit the aero-medical examination to one where the result is reduced to the person being declared fit or unfit, to the detriment of raising the pilot's awareness and promoting safety when the latter meets the fitness criteria;

- EASA include in Part MED of EU regulation No 117/2011, a guide or Acceptable Means of Compliance (AMC) proposing an awareness module that will encourage AMEs to freely address, during renewal medical examinations, the physiological consequences of ageing, using in particular, a contrast sensitivity assessment test as a support, with the objective of promoting safety. ***[Recommendation FRAN-2022-002]***

B) Safety Recommendations of Global Concern

Following safety recommendations, issued in 2022, were classified only as SRGC:

- *The SIA (Finland) issued the following recommendation to ICAO:* The International Civil Aviation Organization updates its Manual of Civil Aviation Medicine to better address age-related factors behind various diseases from an aeromedical point of view. ***[Recommendation L2021-03 (2022-S27)]***

- *The AIBN (Norway) issued following recommendations to EASA:*

    - *EASA to require the type certificate holder Airbus Helicopters to establish a technical solution preventing or giving advance warning of servo transparency, for helicopters that are sensitive to this phenomenon.* ***[Recommendation NO. 2022/04T]***

- *EASA to require that all helicopters, new and used, delivered or imported to Europe be equipped with crash resistant fuel systems in accordance with CS 27.952 or CS 29.952, regardless of their type certification date.* ***[Recommendation NO. 2022/01T]***
- *EASA to not permit commercial passenger flights with helicopters not equipped with crash resistant fuel systems in accordance with CS 27.952 or CS 29.952, regardless of their type certification date.* ***[Recommendation NO. 2022/02T]***
- *EASA to revise Regulation (EU) 965/2012 for lightweight flight recorders, by extending the scope to all helicopters used for commercial air transport of persons, regardless of their certificate of airworthiness date.* ***[Recommendation NO. 2022/12T]***
- *EASA to revise Regulation (EU) 965/2012 for lightweight flight recorders, by extending the scope to all types of light helicopters used for commercial air transport of persons.* ***[Recommendation NO. 2022/11T]***
- *EASA to review instruction and continuous training on the AS 350. This is to ensure that the training includes attention training that enables early recognition and recovery from a servo transparency situation based on the UPRT principles.* ***[Recommendation NO. 2022/05T]***
- *EASA to revise Regulation (EU) 965/2012 for lightweight flight recorders, by including requirements for further registration of data, as well as for audio and video recordings to be made and stored.* ***[Recommendation NO. 2022/10T]***

- *The TSB (Hungary) issued following recommendations to Safran AE:*

  - *Engine manufacturer Safran AE is requested to consider replacing the photos of the safety wiring instructions of nuts (8) and (10) as published in "Aircraft Service Maintenance Supplement (ASMS)" and "SMA AIRCRAFT INSTALLATION MANUAL FOR CESSNA 182 FITTED WITH AN SR-305-230E-MA02 ENGINE", as well as the latter's constituent "Job Card No22" discussing Mode Change Cable installation with ones that illustrate aircraft fastener safety wiring in compliance with recognised industry standards in all respects. Hungarian TSB expects that publishing industry standards compliant photographic instructions concerning safety wiring will improve maintenance work quality and reduce hazards posed by inadequate safety wiring and the risk of fastener disengagement in flight.* ***[Recommendation BA2019-348-4-3]***

  - *Engine manufacturer Safran AE is requested to consider publishing specific torque values for the Mode Change Cable check nuts on the*

engine-side threaded cable end. Hungarian TSB expects that providing specific torque values for aircraft fasteners will reduce the risk posed by inadequately torqued bolted joints and their disengagement in flight. ***[Recommendation BA2019-348-4-2]***

- *The AAIU (Bulgaria) issued following recommendations to CAA (Bulgaria):*
    - *DG CAA should require the operators providing ground-handling services at civil airports for public use in the Republic of Bulgaria to monitor the accumulated fatigue of GSE drivers and to update monthly work schedules if necessary.* ***[Recommendation BG.SIA-2020-04-01]***
    - *Bulgarian DG CAA to include in the National Safety Plan as a risk factor the risk of disruption of airspeed discrepancies for A321 aircraft, as well as for all other similar aircraft types, in the presence of snow cover on the fuselage of the aircraft and requires aviation organizations associated with the operation of this type of aircraft to have developed procedures to minimize its impact.* ***[Recommendation BG.SIA-2018/01/01]***

- END -